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HOUSTON, TEXAS MANNED SPACECRAFT CENTER NOITARTZINIMUA EDAYS CNA SDITUANOREA LANOITAN MAPPING SCIENCES LABORATORY

PREPARED FOR

SS DECEMBER 1969

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TECHNICAL WORKING PAPER

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PROJECT APOLLO

FOREWORD

This working paper presents the screening results of Apollo 12, 70mm and 16mm photography. Photographic frame descriptions, along with ground coverage footprints of the Apollo 12 Mission are included within, by Appendix.

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SCREENING OF APOLLO 12 PHOTOGRAPHY

I. INTRODUCTION

The objective of this screening was to locate and plot the Apollo 12 photographs on a suitable base and obtain as much supporting information as possible to aid principal investigators in their detailed analyses.

The photographic phase of Apollo 12 was a success in that overall good quality photographs were returned. Good overlapping stereo strips and low and medium obliques of the lunar surface were obtained. Excellent photographs of the landing site area and of the Surveyor III spacecraft taken from the Lunar Module and from the surface were returned.

The cameras used in obtaining the photography of Apollo 12 were the 70mm Hasselblad Electric Camera with interchangeable 60, 80, 250 and 500mm focal length lens and the 16mm Data Acquisition Camera with interchangeable 5mm, 10mm, 15mm and 75mm focal length lens. The 16mm camera was also used in conjunction with the sextant. No photography has been received from the SO-158 experiment or from the lunar surface stereo camera at the date of compilation of this report.

II. PROCEDURES

The operational steps taken during the screening of the photography are explained briefly in the following paragraphs:

- a) The Richards and K&E portable light tables were used in examining the 70mm transparencies.
- b) The Athena stop motion 16mm projector was used in examining the 16mm transparencies.
- c) The map used as the plotting base for all photographs was the Aeronautical Chart and Information Center, Lunar Planning Chart, 1:2,500,000 scale, 1st edition, July 1969.

- d) The following criteria were determined by the analysts in screening each photograph: (1) focal length of camera, (2) coordinates of the principal point of each frame, where applicable, (3) forward overlap of each frame, (4) approximate sun angle, (5) approximate tilt of camera, and (6) direction of tilt. In addition, a short description of the image content of each frame was added.
- e) The finished plots were transferred from the Lunar Planning
 Chart to stable base clear film (registered to the lunar
 Planning Chart) and labeled as to the mission and magazine.

III. DISCUSSION

Each analyst was assigned a magazine of 70mm transparencies and furnished the necessary tools to complete his task. Two analysts were assigned the 16 mm transparencies to screen, describe and plot all lunar sequences.

The location of photographs in the area of the lunar farside between 115 and 135 degrees east longitude proved to be somewhat of a problem for two reasons: (1) The extremely low sun angle at the time Apollo 12 was in lunar orbit, and (2) the photographic coverage of the Lunar Orbiter Missions is poor in this region, making it very difficult to locate features imaged on the Apollo 12 photographs.

Another problem encountered in locating the photographs was in mare areas near the sub-solar point. In these areas, due to the extremely high sun angle, the lunar terrain features have very poor definition due to low contrast and shallow craters are almost impossible to identify.

Most of Magazine V and all of Magazines X, Y and Z were taken from the Lunar Module on the surface or from the surface at the Ocean of Storms landing site. Some of the frames were plotted; those frames which are part of a panorama were plotted on Orbiter III enlargements of the site. Many of the frames shot on the surface could not be plotted, however, due to lack of any identifiable plottable object such as the Lunar Module, large boulders, craters, etc. Photographic panorama mosaics were made of many of the areas from 8x10 inch prints.

IV. CONCLUSIONS

A total of 1573 frames of 70mm and 69,519 frames of 16mm film taken on Apollo 12 mission were screened. Very few problems were encountered in screening these photographs. The overall good quality of the individual frames made it possible to locate and plot most of the 70mm photographs.

A large number of frames were taken over areas of the lunar surface never before photographed during an Apollo lunar flight. Areas from the Sea of Nectar to the Sea of Rains, the Central Bay Area and, of course, vast areas of the Ocean of Storms were photographed. Included among these photographs were many geologically interesting craters adding greatly to the growing number of already photographed lunar features recorded on previous Apollo lunar missions. Good quality photography was also obtained of the Fra Mauro landing site, which is to be the target of the Apollo 13 lunar landing mission.

V. RECOMMENDATIONS

It is recommended that during future missions, photographs of areas in high sun angles (near the sub-solar point) and areas within the terminators be eliminated wherever possible. It is felt this film could be better employed in recording images of lunar features in areas where better lighting conditions exist.

MAGAZINE Q

Frames AS-12-50-7325 thru 7459

This color (368) magazine has pictures taken just after TLI and into Lunar orbit 3 with 3 focal length lenses: 80, 250, and 500mm. Earth, moon, spacecraft parts, and spacecraft interior are included.

In general the quality of the images are good although camera movement, and positioning of the camera axis near the sun caused about 9 frames to be nearly useless. Most Lunar topography and all earth frames are oblique (or contain the whole sphere); 5 frames of Petavius-B are near vertical; 13 frames (not numbered) were skipped and not exposed in groups of 1 and 2 frames.

Five useable frames document the smear and liquid droplet movement on the circular hatch window and the left (square) window of the CSM and were taken shortly after TLI. This liquid was apparently largely outside the innermost glass pane.

To's covered (or partially covered) are: 3, 4, 5, 10a, 11, 12, 18, 23, 26, 27, 30, 32, 34, and 35.

High angle obliques (such as Eratosthenes and Humbolt frames)
tend toward a more reddish brown color especially when the illumination
on the image is a low to medium angle.

APOLLO 12 PHOTOGRAPHY
Magazine Q Film 368 Time Reference — GET ____ = GMT __

Frame	Camera #	Approx. Photo Scale		ncipal pint	Fwd O/L	Sun	Photo	Approx. Tilt	Direction of	Description	
# A3-12-	f Length O mm	Piloto Scale	Lat	Long	U/L	Angle	Quality	Min — Max	Tilt		
7325	80	L:15,000,000	32N	88W		Med	Good		SE	Yucatan, Lake Mich. Gulf of Mex. clouds	ļ
7326	80		spa	ce		Med	good	70°	NW	Earth, SLA near horizon So. Amer., Mexico Coko R	Л
7327	250			·			fair			LM,SIVB,Prob H ₂ O drops	
7328	Ìtí'						fair			11	
7329	AI .						fair			11	
7330	<u>,†</u> *									blank	
7331	11						good			Earth, illuminated, N&S America	
-7332	11						good	·		11	
7333	J 1					·	good			11	
7334	11						good			"	
7335	it.						good			8- IV-B	
7336	t.						good			11	
7337	1*						good			11	
7338	11						good			½Earth,S.Am	
7339	u						good			ੈEarth,S.Am	

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APOLLO 12 PHOTOGRAPHY
Magazine _____ Film ______ 368
Time Reference — GET _____ = GMT ______

Frame	Camera # f Length	Approx. Photo Scale	Prin Po	cipal oint	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
# AS-12-5	D mm	Filoto Scale	Lat	Long	0, 2	Allylo	Quanty	Min — Max	Tilt	
7340	250						good			
7341	ч						good			S-IV-B
7342	93						ff 11			½Earth,S.Am
7343	, 11						11			,S-IV-B
7344	97						11			,S-IV-B
7345							11			S-IV-B,LMedge
7346	11			,			ti .			11
7347	†¢						11			"½Earth,S.Am
7348	ŧτ	·					11			IT
7349	**						11			S-IV-B LM edge
7350	1 1						11			n n
7351	*1						11			½Earth,S.Am
7352	fi						11			n
7353	. 11						11			11
7354	80						11			ocean 1/3 earth illuminated.

APOLLO 12 PHOTOGRAPHY
Magazine Q Film 368
Time Reference — GET — = GMT —

Frame #	Camera # f Length	Approx. Photo Scale		icipal int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
***	mm	Filoto Scale	Lat	Long	0, 2	Angle	Quanty	Min — Max	Tilt	
7355	80						good			1/3 Earth illuminated, ocean
7356	80						11			n
7357	80						11			ri .
7358	` 500						11			1/3 Earth,Australia on horizon
7359	500						11			11
7360	500						11			11
7361	500						11			11
7362	250						11	·		11 -
7363	250						11			11
7364	250						11			11
7365	250						poor		·	1/3 Earth,Australia, brownish cast
7366	250						fair			1/4 Earth illuminated
7367	250						fair			1/4 Earth illuminated sunglint fouled hatch window, streaks go away from CMS
7368	80						poor.			cone apex
7369	80	·					fair			fouled hatch window, streaks go away from CMS cone apex

	APOL	LO	12	PHOTOGRAPHY
	Magazine .	Q		Film <u>368</u>
Time	Reference	_	GET	= GMT

Frame #	Camera # f Length	Approx. Photo Scale		cipal int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
π	mm	Prioro Scare	Lat	Long	0, 2	1	444,	Min — Max	Tilt	da lott vindov tovled
7370	80						fair			sq.left window fouled max.liquid is along edge away from cone apex
7371	80						fair			11
7372	80						good	·		left window;max liquid edge is away from cone apex
7373	· 80						poor			LM thrusters
7374	80						fair			Edge of LM
7375	80						poor			Window, Camera Movement
7376	80						poor			II
.7377	80						fair			1/5 Earth, terminator
7378	80						fair	·		ff .
7379	80						11			ti
7380	80						11			ti
no number	250	·		·			very poor		<u> </u>	3 under-exposed frames of no use; probably earth
7381	11						good			1/5 Earth terminator probably W.Australia
7382	t1						11			11
7383	. 11						l II			11

APOLLO 12 PHOTOGRAPHY
Magazine Q Film 368Time Reference — GET — = GMT —

Frame #	Camera # f Length	Approx. Photo Scale	Prin Po	cipal int	Fwd. O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of Tilt	Description
#	mm	Filoto Scale	Lat	Long	<u> </u>			Min — Max	1111	1/5 Earth terminator
7384	250		,	·	e e		good			probably W. Australia
7385	11						11			1/5 Earth, terminator
7386	11						11			11
7387	- 11						11			IT
7388	11						11			11
7389	11						poor			pre-Rev. 1, moon darkside
7390	11						11			· II
7391	11						fair			1/4 Earth illuminated
7392	. 11						11	·		11
7393	11						11			Ţţ
7394	11	·					11		-	11
739 5	"						11			11
7396	80						poor			window edge,1/4 Earth
7397	250						poor			window streak; shutter pentagon
7398	11						11			smear; shutter image

APOLLO 12 PHOTOGRAPHY

Magazine Q Film 368Time Reference - GET = GMT =

Frame #	Camera #	Approx. Photo Scale		cipal int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
#	f Length mm	Piloto Scale	Lat	Long	U/L	Angle	Quality	Min — Max	Tilt	
7399	250			, socradica. DAI see kaassa see saa	angungan ang ang ang ang ang ang ang ang ang		Poor			Smear; shutter image
7400	11			and an article of the desired Administration of	e Secretary consumptibility for two 2 in the Selections	and the second seco	11		mannum mpanus suudammaahaan ahan ahan ahan mid mid farat suudam ma	. — III
7401	T)						11			
7402	500		9N	7E	·	Low	Fair	50-65°	N	Triesnecker-Hyginus Area TO-21, 22; Rev. 1
7403	11		4N	11E		11	11	1:	11	Triesnecker-Agrippe Center Crater,TO-21,22
7404	11					Med.	11	60-75°	SE	Between long 140E & 160E; Rev. 2
7405	250	Commenced to the Anglet of the Commenced	IN	SPACE	80	11	Good	60-70°	N	Mare IX, about 140°E Rev. 2
7406	11		IN	SPACE	80	11	11	11	11	. 11
7407	11	CONTROL CONTRO	IN	SPACE	ŧī	11	11	. 11	11	Mare IX, about 140°E Rev.2, red window edge
7408	15	1:4,000,000	4 N	120E	60 60	i.	11	50-60°	ţ*	Crater 211 near horizon Rev.2; Partial TO-4
7409	"	11	5 N	120.5E	11	11	11	11	ft	11
7410	500	1:5,000,000	32S	108E		High	Good	65-75° -	S	West of Mare III; Rev. 2
7411		T 1	32S	103E		11	11	11	11.	11
7412	11	. 11	288	84E	25	11	11	50-60°	SE	East edge of Humbolt; TO-10a; Rev. 2
7413	11 ,	1*	28.5S	81E		11	Fair	11	ii .	Humbolt, S Mare on Horizon Rev 2:TO-10a

APOLLO 12 PHOTOGRAPHY Magazine Q Film 353

Time Reference — GET _____ = GMT _____

Frame	Camera #	Approx.		cipal int	Fwd	Sun	Photo	Approx. Tilt	Direction of	Description
#	f Length	Photo Scale	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	
7414	500	1:5,000,000	29S	78E	25	H i gh	Good	50-60°	S	West edge of Humbolt TO-10a; R _e v. 2
7415	11	11	28S	80.5E	!!	. 11	. 11	11	SE	Humbolt: Mare Australe on horizon; TO-10a Rev. 2
7416	11	11	11	11	11	11	11	11	11	11
7417	11	11	11	11	11	11	11		11	11
7418	**	11	11	11	11	. 11	11	11	tt:	!!
7419	*1	11	27 <i>5</i> S	76.5E	† 7	11	11	11	11	West edge of Humbolt; TO-10a; Rev. 2
7420	11	11	27.5S	11	11	11	11	17	11	11
7421	11	11	ŤŤ	11	. 19	11	11	11.	11	11
7422	11	1:4,600,000	16.5 S	41E	90	Med		7-15 ⁰	S	Bohenberger area; TO-12; Rev. 2
7423	11	PACONIA MENEROLIZATO DE CONTROLEMENTO DE TOTAL DISCONIA MENTO DE CONTROLEMENTO DE CONTROLEM	11	!'	11	11	11	1 1	11	
7424	1.0	!!	11	1"	v	. 11	i:	17	, 1 *	militaria esta esta esta esta esta esta esta est
74.25	250		14S	35E	30	11	11	10-150	SW	Mare Nectaris; <u>≃</u> GET 36:17, Rev. 2
7426	ţŧ.	1"	14.5S	33E	1*	11	•	11	**	11
7427	1.	1:1,380,000	10.5S	18E	90	11	Fair	15-24 ⁰	SE	Descartes-Kant Area; TO-18,Alt. 153N. Mi.
7 42 8	11	11	8S	11	11		!	1*	SE	GET≅\$5:22

APOLLO 12 PHOTOGRAPHY
Magazine Q Film 368 Time Reference — GET ____ = GMT ____

Frame #	Camera # f Length	Approx. Photo Scale		cipal int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
11-	mm Lengin	Filoto Scale	Lat	Long	0/ [Aligie	Quarity	Min — Max	Tilt	
7429	250	1:1,380,00	8 S	7.5E	90	med	good	5 - 10°	SE	Hipparchus, Albategnius TO-23; GET ≅ 86:23
7430		TT	8 S	7.5E	90	11	11	5 - 10°	SE	11
7431	††	1.1,350,000	4S	6.5E	95	11	11	20 – 25°	SE	Herschel in center;Rev 2 GET ≥ 86:24;T0 26, 27
7432	. 11	11	4S	6.5E	95	II	11 .	11	11	11
7433	500	1:2,000,000	15N	11.5W		low	fair	65 - 75°	N	Eratosthenes; Rev. 2 GET = 84:30
7434	11	11	16N	4.5W		11	11	70 - 80°	NE	Apenninus Mts.,Rev. 2 Bode Rill II;GET 286:26
7435	250	1:4,900,000	4S.	7W		low	good	50 - 40°	NE	Lalande, Herschel & Ptolemaeus, TO-30,32; Rev. 2
7436	11	7:4,000,000	2.5S	14W	90	3 - 5°	fair	8-140	E	Gambart in North TO-34,35 Rev. 2
7437	The second secon	11	11	11	11	11	11	11	11	II.
7438	11	FT	11	ff	11	11	11	11	ff	Gambart in North:TO-34, 35, term.@west edge Rev. 2
7439	11	11	Tf .	ii .	17	11	II .	11	11	11
7440	11	равин дас довужда: Само дрого досущено. Чест 7 гг. областо да досущено положен	ir	space		med	good	860	N .	Mare IX; limb Rev. 3
7441	11	Character and new Statements Consecuting Statements and Consecution (Consecution Consecution)	11	11		11	11	11	TI .	II.
7442	11	1:2,400,000	15S	130E	30	. 11	11 ,	65 - 75°	SE	N.of Tsiolkovsky;partial coverage TO-3
7443	11	11	"	11	11	!I	11	11	11	11

APOLLO 12 PHOTOGRAPHY
Magazine Q Film ____ Film _____368 Time Reference — GET ____ = GMT ____

Frame #	Camera #	Approx.		icipal oint	Fwd	Sun	Photo	Approx. Tilt	Direction of	Description
#	f Length mm	Photo Scale	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	
7444	250	1:2,400,000	17S	122 . 5E	80	med	good	55 – 60°	SE	about 90 N.M. NW of Tsiolkovsky TO-5
7445	11	11	11	123E	11	11	11	TT .	ft .	about 60 N.M. NW of Tsiolkovsky TO-5
7446	11	11				11	11		SW	long. 80E to 125E (?)
7447	11	11				11	11		î î	11
7448	ţţ	1:10,000,000	25S	84E		high	good .	50 – 60°	S	Humbolt area
7449	. 11		24.5S	83E		II	11	II .	S	11
7450	lt.	11	Ħ	80.5E		Ħ	11	11	. II	11
7451	ft.	11	25S	80E		11	11	11	ff :	н
7452	1.	ii .	11	77E		11	11	11	TT .	11
7453	1.	. 11	11	73.5E		†f	11	11	11	11
7454	11	11	11	11		71	11	tt ·	11	11
7455	80	1:1,376,00	18S	61E	0	high	good	5-5°	S	East of Petavius B TO-11
7456	ţt	11	18.58	59E	0	.11	11	3 - 5°	S	Near Petavius B TO-11
7457	†!		195	58.5E	10	11 '	tt	11	!!	. 11
7458	†! 	11	19.5S	57E	10	11	11	11	11	lı.

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APOLLO 12 PHOTOGRAPHY Magazine Q Film 368 Time Reference — GET _____ = GMT _____

Frame #	Camera # f Length	Approx. Photo Scale	Prin Po	cipal int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
TY	mm	riioio Scale	Lat	Long	O / L.	Aligic		Min — Max	Tilt	
7459	.80	1:1,376,000	19.5S	56E	5	h i gh	good	3 - 5°	S	Petavius B TO-11
no numbe										about 1/5 of a frame at end of roll.
							The numb	er of blank	frames, i	n groups of 1, & 2, is:
	`									twelve (12)
and the group designed by the colored growth conserved.	en vickustas openintas alkingi että jä kiikin kaitiin kaitiin kaitiin kaitiin kaitiin kaitiin kaitiin kaitiin									•
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he area abbah sabibi erekatean Beroare		pumpio cum verbit comprehensemente pur la META MATA MATA ANTI PER COMPANA.					THE RESERVE OF THE PROPERTY OF			
				panakan panak <u>a</u> di kalif kabi M ara di k alif ang pa			en og graveg og ett det kombonere er er gelde glide fillet for ett kombo			
om av let samlet galatin sedije. Kadi. V	a katanga meri ayan darangan inin an integrita ang pagkila di Jumperia anan		·							en marin en marin vinner kent frin graft. De Transis graft van de verken er vil die dept dat een de verkend oorloop de die die die die die die die die die
		anne de la companya de la compa				**************************************	angan magalakan persepatuan pengahan di di dibangan persebangan pengahan di di dibangan pengahan penga		nemente i seculari i dandagia masila (Kilopi Sarquagia di Salatera	
	THE CONTRACTOR CONTRAC	kamanatira a Jaharahara mari Jamaha samaharan katera cara namet neber Jahat Samaran								
	Annes Carlo Calegorous () annes se e se e e e e e e e e e e e e e e	ум на станова на наврежения по предоставления на постоя на больно на больно на больно на больно на больно на п На постоя на п					American mengencer of realizing paradomental State State of State		eerkinkkeristeliseskasisteliseskasisteliseskasisteliseskasisteliseskasisteliseskasisteliseskasisteliseskasiste	
kenadalah dari dari dari kelalah dalam	words the ground state of the ground state and the ground state of	general and designation to the state of the	eneticulity (destribution in the			CHARLES OF COMPANY OF	mas yazın garday yağıyağınmıştır dağı gölüğü ili değilik değilik de		St. M. St., Shareshop of Calabia Milly, Sci 22 Signific a Silve Mandata Annies	And the second control of the control of the second control of the
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MAGAZINE R

(Frames AS12-51-7560 thru Frames 7588)

Magazine R is 70mm color photography of the lunar surface, and some views of the earth. The photographs were taken from the Command Module at approximately sixty nautical miles orbital altitude. The majority of photographs were oblique with a view on track or in a northerly direction. A 80mm lens was used for all but twenty frames. The remaining frames were recorded with a 250mm lens. Photo quality was good with the exception of approximately ten percent of the magazine. Eighty percent of the frames cover areas of the lunar surface on the near side with ninety percent of these covering from 35° East longitude to 40° West longitude.

The following targets of opportunity were fully or partially imaged: TO #7, #8, #9, #15, #23, #25, #26, #27, #29, #31, #32, #33, #34, #35, #36, #37, #39, #40, #42, #43, #44, #45, and #47.

APOLLO 12 PHOTOGRAPHY Magazine R Film SO

Film _S0_368_

Time Reference — GET ____ = GMT ____

Frame #	Camera # f Length			ncipal pint	Fwd O/L	Sun	Photo	Approx. Tilt	Direction	Description
100 Maria 100 Ma	mm	Filoto Scale	Lat	Long	O/L	Angle	Quality	Min — Max	Tilt	
7460	80	1,678,600	12 ⁰ S	33 ⁰ E	0	High ·	Good	30-40	N	Sea of Nectar, Crater Daguerre
7461	tt .	TT .	11	†1	90%	11	11	TT .	11	
7462	11	11	11.58	32.5°E	70%	11	11	ŦŤ	11	11
7463	11	11	ll ^o s	31 [°] E	50%	11	, 11	11	11	Crater Madler
7464	11	11	11	30 ⁰ E	70%	11	11	11	и,	ti .
7465	11	††	10.58	29 ⁰ E	60%	11	11	11	11	11
74.66	***	11	11	28 ⁰ E	80%	T1	11	t1	11	Craters Theophilus and Madler
7467	11	11	10°s	27 ⁰ E	70%	11	11	11	· 11	Craters Theophilus & Theophilus B
7468	††	11	ti .	26.5°E	70%	11	11	11	11	Craters Theophilus & Theophilus B
77.69	11	. 11	10.5°	25.5 ⁰ E	60%	11	11	11	11	
7470	11	TT	11	25 ⁰ E	90%	11	tt	. 11	ti .	. 11
74.71	11	1,880,100	14°s	3 ^o E	0	Med	11	40-45	SW	Craters Albategnius and Parrot
7472	250	622,200	9.5 ⁰ s	0	0	11	11	40-50	S	Crater Ptolemaeus
7473	F1	583,000	8.5 ⁰ S	1°W	11 .	11	ŧī	35–45	S	Crater Ptolemaeus A
474	11	11	!!	3 ⁰ W	11	11		35 - 75	· g	West side of Crater Ptolemaeus

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Frame #	Camera # f Length	Approx. Photo Scale	Po	cipal int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of.	Description
	mm		Lat	Long				Min — Max	Tilt	
7475	250	622,200	8.5°s	4 ⁰ W	50%	Med	Good	40–50	S	West Side of Crater Ptolemaeus
7476	11	969,200	L4.5°S	7 ⁰ W	·	11	11	60–70	S	Craters Lassell and Alpetragius B
71.77	11	1,041,100	15 ⁰ S	8.5°W		TT.	11	11	11	Craters Davy, Lassell, and Lassell C
7478	11	1,126,100	L4.5 ⁰ S	9 ⁰ W		! 1	11	65–70	S	Craters Davy, Lassell and Lassell C
7479	11	18 .	14°S	9.5°W		19	tî	60-70	11	Sea of Clouds, Crater Lassell C
7480	. 11	503,100	2.5 ⁰ S	14 ⁰ W	0	Low	Poor	25 – 35	. W	Area North of Fra Mauro, very dark
7481	11	767,100	9 ^o s	15 ⁰ W .		11	Fair	50-60	S	Craters Parry and Parry A
7482	11	11	8.5 ⁰ S	15 ⁰ W	·	11	11	11	S ·	11
7483	1!	11	8 ^o s	16 ⁰ W		tt	11	11	11	Craters Parry. Fra Mauro
7484	11	11	7.5 ⁰ S	17 ⁰ W		11	11	11	11	Very dark- SE Rim of Fra Mauro '
			Da	_ O						
7485	1!	1,041,100	10.5°S	7°W	0	Med	Good	60-70	SW	Crater Davy, Davy & Very Dark-Terminator
7486						Low	Poor			Shot Not Plotted
7487		Mentions states of Dissipation and States and States and All Company of the Company of States and All Company		- The second section of the Control of the Second Section of the Sect		11	TI .			11
74.88						11	,,			11
7489							Good			Earth View

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Frame #	Camera # f Length	Approx. Photo Scale		nci pal oint	Fwd	Sun	Photo	Approx. Tilt	Direction of	Description
	mm	Filolo Scale	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	
7490	80				С	High	Poor			Sea of Fertility Not Plotted
7491	11				70	iı	11			Sea of Fertility Not Plotted
7492	11				0	11	11			11
7493	11				70%	11	u			11
7494	71	1,411,200	15°S	4.9°E	0	11	Good	10-15	W	Sea of Fertility, Crater Colombo M
7495	TT CONTRACTOR CONTRACT	1,454,200	11	11	95%	12	11	15 - 25	W	т .
7496	11	1,517,100	11	48.5 ⁰ E	90%	11	11	20-30	W	Craters Columbo M and McClure A
7497	TT	1,572,100	11	48 ⁰ E	90%	11	tī .	25-35	. 11	Craters Columbo M & East Rim of Colombo
7498	11	1,678,600	12°s	19.5°E	۰0	11	11	30-40	11	Craters Kant, Cyrillus, B and Kant D
7499	11	11	11	11	95%	11	11	11	II .	Craters Kant, Kant D, and Cyrillus B
7500	11	11	††	11	11	11	TT .	ft .	11	. 11
7501	[1	2,184,900	9 ^o s	5.5°E	O	Med	11	50-55	11	Craters Hind, Halley Albategnius and Muller
7502	*!	11	11	5°E	90%	ţ1	11	11	11	Craters Hind, Halley Muller, & Ptolemaeus
7503	††	2 , 524 ,6 00	g ^o s	0.5 [°] E	50%	Ţ!	11	55-60	! *	Craters Ptolemaeus Herschel & Müller
7504	71	11	7.5°s	0.5°W	90%	11	11	11	11	Craters Miller, Hersche and Ptolemaeus

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Frame #	Camera # f Length	, , ,		ncipal pint	Fwd	Sun	Photo	Approx. Tilt	Direction of	Description
<i>††</i>	mm Length	Photo Scale	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	
7505	8 0 .	2,669,700	7.5°S	1.0°W	80%	Med	Good	55–60	W	Craters Muller, Hersche and Ptolemaeus
7506	11	11	11	3.5°W	50%	. 11	11	55-65	W	Craters Ptolemaeus, Herschel & LaLande C
7507	11	2,836,200	7 ⁰ S	4.5°W	80%	11	. 11	t t	Ħ	11
7508	ţ1	4,702,900	HOR	IZON	30%	11	11	70-75	11	LM Tracking Crater LaLande
7509	11	11	11	11	30%	11	11	11	15	LM Tracking, Craters LaLande & LaLande A
7510	11	T1	11	11	30%	11	11	11	TT.	11
7511	11	11	11	ti	11	11	11	11	tt	II .
7512	11						. 11	11	11	Earth View
7513	††						11			. 11
7514	. 11	3,028,700	11.58	9.5°W	0	!:	Fair	60-65	SW	Craters Davy and Davy Y Sea of Clouds
7515	11	3,519,000	11.5°	Sll.5 ⁰ W	70%	. 11	11	65-70	, ti	Ħ
7516	11	5,312,600	HOR	[Z ON	0	FT	11	70-80	N	Oblique View of Copernicus Crater
7517	11	11	. 11	11	30%	11	Ħ	Ħ	11	11
7518	11.	4,702,900	HOR	IZON	0	Low	I!	70–75	SW	Area Between Craters 293 & 297
7519	i,	11	HOR	ZON	0	tt .	11 .	M se	11	11

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Frame #	Camera # f Length	Approx. Photo Scale		ncipal pint	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
	mm	1 noto ocute	Lat	Long	0,2	Aligie	Quality	Min — Max	Tilt	
7520	80.	5,312,600	ног	NCZI	0	Jow	Fair	70-80	SW	Area Between Craters 293 and 297
7521	11	11	НОБ	IZON	0	. 11	Good	70-80	NW	Crater IX
7522	11				·		11			Farth View
7523	11						11		A	11
7524	11		HOR	IZON			Poor	·	Ŵ	Area Just West of Crater II, Earth Rise
7525		and therefore is the second substitute of the	11	11			-11		11	Area Just West of Crater II, Earth Rise
7526	11		11	11			11		п	Area Just West of Crater II, Earth Rise
7527	11	·	11	11			11		11	Area Just West of Crater II, Earth Rise
7528	11		11	†!			11		11	Area Just West of Crater II, Earth Rise
7529	11		11	11			11		11	Earth Rise
7530	1 1	4,223,400	11	11	0	Low	. 11	65-75	S	Crater 286 at Terminator
7531	11 .	1,678,600	ı°s	25 ⁰ W	0	Med	Fair	30–40	NE	Crater Lansberg
7532	· 11	11	11	26 ⁰ W	80%	11	11	11	ţţ	11
7533	11	1,944,520	2.5°N	13.5°W	0	11	Poor	40–50	N	Crater Gambart, Gambart B, and Gambart C
7534	11	2,284,700	3°N	15 ⁰ W	0	: 11	11	50–60	şı .	Crater Gambart

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Frame #	Camera # f Length	Approx. Photo Scale		cipal oint	Fwd O/L	Sun	Photo Quality	Approx. Tilt	Direction of	Description
17	mm mm	Photo Scale	Lat	Long	U/L	Angle	·Quality.	Min — Max	Tilt	
7535	8 C	3,519,000	HOR	IZON	30%	Med	Poor	65–70	N	Oblique View of Crater Copernicus
7536	11	3,836,800	HOR	IZON	11	11	11	11	11	Craters Copernicus and Reinhold B
7537	11	1,721,700	0.5 ⁰ S	26.5°W	0	11	.11	35–40	W	Crater Lansberg
7538	11	11	0.5 ⁰ S	11	95%	11	Fair	11	11	11
7539	11	11	1°N	29 ⁰ W	0	Low	Good	35-40	NW	Craters Lansberg A and Kunowsky D
7540	. 11	1,821,900	2°N	31.5 ⁰ W	40%	11	. 11	35-45	W	Crater Lansberg A
7541	11	3,253,5 0 0	7°N	19.5°W	0	Med	11	60-70	· N	Craters Copernicus Rheinhold A & Gambart A
7542	11	11	11	20 ⁰ W	80%	11	Fair	60-70	11	Craters Copernicus & Rheinhold A
7543	11	2,669,700	2.5 ⁰ N	22 ⁰ W	0	11	11	55-60	NW	Craters Rheinhold & Rheinhold B
7544	11	3,519,000	10°N	26.5°W	0	11	Good	65-70	N	Craters Hortensius & Hortensius E '
7545	. 11	. 11	9.5°N	28 ⁰ W	80%	11	11 .	. 11	n	
7546	11	3,836,200	11	31 ⁰ W	50%	11	u · j	11	Ħ	Craters Hortensius A & Hortensius B
7547	11	4,702,900	HOR.	ZON	0	Low	11	70–75	NW	Craters Kunowsky, Encke and Kepler
7548	11	2,016,100	3.5°N	32.5°W	0	Ħ	11	45-50	NW	Craters Kunowsky and Hortensius A
7549	11	3,028,700	8.5°N	34 ⁰ W	30%	11	11	60-65	N	Craters Kepler A, Kepler B and Hortensius A

Frame #	Camera # f Length	Approx. Photo Scale		icipal pint	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
	mm		Lat	Long	0, 5	Aligic	Quality	Min — Max	Tilt	
7550	<u>80 </u>	3,253,500	7.5 ⁰ N	36.5 ⁰ W	30%	Low	Good	60-70	NTAI	Craters Encke and Kepler
7551	11	2,397,200	4.5 ⁰ N	36.5°W	30%	11	11	50-60	W	Craters Encke & Kepler
7552	11	3,253,500	ll ^o N	32.5 ⁰ W	0	11	11	60-70	N	Craters Kepler B & Milichius A
7553	11	3,519,000	12 ⁰ N	34 ⁰ W	70%	11 -	11	65–70	N	11
7554	11	2,836,200	2.5°N	116.5°E	0	Med	11	60–65	ŃW	Area Between Craters 206-211
755 5	11	3,519,000	6°n	121 ⁰ E	40%	11	11	65–70	N	Oblique View looking North into Crater 211
7556	11	1,721,700	5 ⁰ S	119 ⁰ E	0	Med	Good	30–40	N	Area Just West of Crater 277
7557	11	2,836,200	၀	114.5°E	0	1:	11	60-65	NW	Craters 206, 277, 275, and 277
7558	11	1,572,100	5.5°s	114.5 ⁰ E	30%	11	. 11	25-35	NW	Southern Half of Crater 277
7559	11	3,519,000		110 ⁰ E	0	rı .	11	65–70	NW	Craters 202, 204, 207 and 275
7560	11	3,253,500	o ^o	108.5°E	60%	11	11	11	11	Craters 202, 204 and 273
7561	11	1,880,100	6 ^o s	109 .5⁰E		11	11	40-45	NW	Crater 273
7562	11	3,028,700	ı°s	116.5°E	0	11	†1	60–65	NE	Crater 277
7563	11	11	2 ^o s	103.5°E	0	High	11	11	NW	Crater 270
7564	11	2.669:700	9.5 ⁰ S	113.5°E	0	11	Fair	55-65	E	Crater 276

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Frame #	Camera # f Length	Approx. Photo Scale		ncipal pint	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
T	mm	Filoto Scure	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	
7565	80. ·	3,028,700	5 ⁰ S	84 ⁰ E	0	High	Good	60-65	NW	Craters 263, Smyths Sea
7566	ŧŧ	tt .	7 ⁰ S	79 ⁰ E	30%	t!	11	11	11	Crater Kastner
7567	11	2,524,600	10°s	75.5°E	0	rt	11	55 –60	NW	Craters LaPerouse & LaPerouse E
7568	11	t!	9°s	66.5°E	0	11	11	11	NW	Crater Langrenus A
7569	n	3,028,700	8 ⁰ S	61.5 ⁰ E	50	11	11	60-65	ŃW	Crater Langrenus
7570	11	3,519,000	10.58	29.5°E	0	11	11	65–70	W	Craters Daguerre & Madler, Sea of Nectar
7571	11	2,669,700	22 . 58	37.°E	0	īī	11	55-69	S	Craters Fracastorius B, Central peaks of Piccolo
7572	250	969,200	10°N	31.5°W		Low	Poor	60–65	N	Craters Milichius and Milichius A
7573	11	907 ,60 0	9.5°N	32.5°W		. 11	11	55-65	N	Crater Milichius A
7574	11	854,300	9 ⁰ N	34 ⁰ W		. 11	11	55-60	N	Ocean of Storms :
7575	11	- H	11	35°W		11	11	11	11	Crater Kepler B
7576	11	807,900	7.5°N	35 [°] W		11	11		11	TH.
7577	11	11	TT.	36 ⁰ W		11	11	ŧī	ff .	Craters A & Kepler B
7578	11	1,126,100	9,5°	34 ⁰ W		11	11	60-70	N_	Just North of Kepler B
7579	80	3,836,200	HOR.	ZON	0	H i ơh	Good	65-75	S	Craters Alphonsus & Arzachel

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Frame #	Camera # f Length		Prir Po	ncipal pint	Fwd O/L	Sun Angle	Photo	Approx. Tilt	Direction of	Description
	mm		Lat	Long	0/ [Angle	Quality	Min — Max	Tilt	
7580	80.	3,836,200	НОІ	IZON	90%	High	Good	65–75	S	Craters Alphonsus, Arzachel & Alpetragius Almost total eclipse
7581							II			Almost total eclipse of Earth
7582							11			Earth View
7583							11			17
7584							11			Solar Eclipse
7585							11			11
7586							11			
7587		en de de la grande		***			11	·		11
7588										Star Shot
										4
****O-CATTOONNOSSAGENOOMING										

MAGAZINE S

(Frames AS12-52-7589 thru Frames 7762)

Magazine S, AS12-52, is black and white orbital coverage of the Lunar Surface taken from an average altitude of 60mm. It consists of 173 frames numbered from 7589 through 7762 with 80mm, 250mm and 500mm lenses being used.

The coverage ranges from 130° East longitude to 45° West longitude and 15° North latitude to about 50° South latitude. Photo quality ranges from poor to good.

Frames 7489 through 7600, TO-35, are 80mm low oblique stereo coverage of Fra Mauro. All frames are of good quality.

Frames 7669 through 7709 are poor to good quality 500mm, low oblique to near vertical stereo coverage of Fra Mauro. The frames are partially exposed due to a camera shutter malfunction. Frames 7631 through 7668 are poor to good quality, low oblique 500mm, stereo coverage of Descartes. Frames 7645 through 7668 are partially exposed due to a camera shutter malfunction.

Frames 7601 through 7630 and 7710 through 7762 were taken with a 250mm lens. Frames 7605 through 7630 are 250mm, low oblique to near vertical, stereo coverage of the southern edge of Herschel.

The photo quality is fair to good. Frames 7735 and 7738 through 40 are 250mm high oblique exposures of Copernicus. The photo quality is good. Frames 7761 and 7762 are blurred and not plottable.

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Frame #	Camera # f Length	Approx. Photo Scale		cipal int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
π	Lengin	riioio Scale	Lat	Long	0/ L	Augle	Quality	Min — Max	Tilt	
7589	80	1:1,678,690	5.6 ⁰ s	13.4°W	95%	-Low	Good	30-35 ⁰	SW	Fra Mauro TO35
7590	11	11 11	5.5°S	14.2°W	95%	11	11	11	tt	11
7591	11	1:1,604,100	4.4°S	14.4°W	95%	11	11	и	S	11
7592	11	11	4.7°S	15.8°W	90%	. 11	11	11	11	11
7593	11	11	4.9 ⁰ S	16.0°W	90%	11	11	11	11	- 11
7594	11	1:1,517,100	4.9°S	16.0°W	90%	, II	11	20-25°	E	11
7595	11	1:1,821,900	11	17.4°W	85%	11	11	35-40°	W	
7596	11	1:1,769,300	4.7 ⁰ S	17.8°W	11	11	11	35–40°	W	11
7597	11	1:1,769,300	4.9°S	18.2°W	11	11	11	ji Lika a kanta da	SW	11
7598	11	1:1,821,900	4.7 ⁰ S	19.2°W	95%	11	11	. 11	. II	11
7599	11	1:1,678,600	4.8°S	19.3°W	90%	11	11	11	11	11
7600	11	1:1,517,100	4.1°S	18.4°W	95%	Ħ	11	25 -3 0°	11	11
7601	250	1:767,100	12.6°	565.7°E	95%	11	11	55-60°	SSW	Directly East of Langrenus G
7602	11	ti ti		565.3°E		11	11	11	11	Between Lame, Langrenus P and Langrenus G
7603		11	12.6°	565.0°E	95%	11	11	11	11	11

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Frame #	Camera # f Length	Approx. Photo Scale	Po	cipal oint	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
7604	mm 250	1:699,200	Lat 6.6%	Long		High	Good	Min — Max 45-51 ⁰	Tilt W	Between Muller and Herschel TO-26
7605		1:622,200 1:699,200	6.4°s	2.6°W	95%	11	11	45-51°	W	T0-27 Southern edge of Hersche
7606	11	11	6.3 ⁰ S	2.7 ⁰ W	95%	11	11	11	11	
76 0 7	` 11	11	Ħ	2.4°W	11	11	11	11	11 .	11
7608	11	11	tt.	11	Ħ	11	11	**	11	11
7609	11	11	11	11	11	11	11	††	11	11
7610	11	! 1	11	11	11	11	11	. 11	. 11	11
.7611	11	ŧī	11	11	11	11	11	11	11	11
7612	11	11	11	11	11	11	11	. 11	ŧ†	11
7613	11	11	11	יין	90%	f†	Fair	,,	11	,,
7614	11	11	6.4°s	2.6°W	11	11	11	!!	11	†!
7615	11	į t	6,3 ⁰ s	. 11	95%	11	11			li.
7616	11		6.4°s		90%	tr	Good	· tr	11	11
7617	11	II .		2.1 ⁰ W	80%		II.	11	11	11
7618	††	11	11	11	"	Med	ft.	11	11	11

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Frame #	Camera # f Length	Approx. Photo Scale		ncipal pint	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
	mm	inoio ocare	Lat	Long	0, 5	Aligie	Quality	Min — Max	Tilt	
7634	500	1:1,222,000	8.8°s	15.3°E	95%	Med	Good	15-20°	W	Area of Descartes center between Taylor, Dolland TO-18nd B, and Kant D.
7635	11	11	11	11	11	11	11	n	11	11
7636	PT	īī .	11	11	11	ft	11	11	11	11
7 637	11	11	<u>rf</u>	11	11	11	11	17	11	11
7638	11	11	11	11	11	11	11	††	11	
7639	11 -	11	11	11	11	11	11	11	11	tt
7640	11	11	tt	11	11	11	Fair	11	11	11
7641	11	79	11	11	11	11	11	11	11	11
7642	11	11	11	11	11	11	11	Ħ	11	11
7643	11	11	11 .	11	11	11	11	11	TI.	11
764 4	11	11	11	11	††	11	Ħ	11	11	The second secon
7645	11	11	11	11 .	11	11	11	11	ti	" Partial Frame
7646	ff.	† †	11	11	11	11	Poor	1!	11	n
7647	11	11	11	ţţ .	11	11	11	tt.	11	tt.
7648	11	11	11	Ħ	11	11	11	11	11	11

Frame #	Camera # f Length			ncipal pint	Fwd O/L	Sun	Photo	Approx.	Direction of	Description
mm	mm	THOIC COME	Lat	Long	O/L Ang	Angle	Quality	Min — Max		
7649	500	1:1,222,000	8.8°S	15.3°E	95%	Med.	Poor	15-20°	W .	ictueen Taylor, Dolland, Bland B, and Kant D. Partial Frame
7650	11	!!	11	,,	11	11	11	11	11	11
7651	11		11	11	11	11	11	11	11	11
7652	11	- 11	11	11	11	11	11	11	11	Ħ
7653	11	. 11	11	11	11	11	tt	tt	ll.	II .
7654	11	1	11	11	r.	11	11	11	11	, i ti
7655	11	11	11	11	11	1*) :	††	71	1°
7656	tı	- 1:	ti.	11	11	1.	t!	17	11	17
7657	11	11	r.	11	ri .	11	11	11	1.	11
7658	!!	11	1:	11		1.	12	11	†1	tt
7659	11	11	11	Ħ		11	11	ţi.	11	ti .
7660	11	11	11	11		11	tt .	11	ī!	11
7661	11	. 11	11	11		11	11	11	. !!	ff
7662	- 11	11	11	11		11	11 ·	11	11	n .
7663	11	11	11	. 11		11	11	11	11	11

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Magazine S Film B&W (S0164)
Time Reference — GET ____ = GMT _____

Frame Camera # # f Length	1	Principal Point		Fwd O/L	Sun	Photo	Approx. Tilt	Direction of	Description	
		riiolo Scale	Lat	Long	U/L	Angle	Quality	Min — Max	Tilt	Description
7664	500	1:1,222,000	8.8°S	15.3°E		Med.	Fair	15-20°	W	Area of Descartes center cellend Raylor, Kolland, and Kant D.
7665	11	11	11.	f!		. 11	11	11	11	11
7666	ŧr	f:	tr .	11		11	11	11	t"	"
7667	` **	11	11	Ħ		li.	*1	††	1.	Ħ
7668	11	ff -	f1	îf		**	11	11	t*	II.
7669	500	1:1,222,000	3.8°s	17.4°W	0%	High	Poor	10-15°	WSW	Southwest of Fra Mauro and Southeast of Fra Mauro J. (Partial Frame
7670	11	11	11	11	97%	TŤ.	11	11	TT .	11
7671	t!	11	11	11	11	11	11	11		tt
7672	11	. 11	11	· 11	99%	11	11	11	11	11
673	. 11	11	11	tt	94%	11	11	11	11	tt t
674	11	11	11	11	95%	1,	11	ŗ.	11	Tr Tr
675	!!	ţ·	1'	Ħ	L00%	11	11	11		Tt .
676	į,	11	11	11	95%	Į,	1.1	11	11	11
677	11	11	11	11	11	11	11	11	11	11
678	ft	11	11	11	80%					11

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 PHOTOGRAPHY

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Frame #	Camera # f Lenath	Approx. Photo Scale		ncipal pint	Fwd O/L	Sun	Photo	Approx. Tilt	Direction of	Description
77	f Length	Thoro Scare	Lat	Long	0/ -	Angle	Quality	Min — Max	Tilt	
7679	500	1:1,222,000	3.8°s	17.4°W	75%	High	Poor	10-15°	WSW	Southwest of Fra Mauro tand (Southeast of Fra Mauro 1. (Partial Frame)
7680	.11	11	"	11	80%	11	11	11	11	11
7681	. 11	11	Ħ	11	"	11	11	11	11	11
7682	` 1!	11	11	įī	11	11	11	tt	ří .	"
7683	į•	11	11	11	75%	Ħ	11	11	11	"
7684	TT	11	11	11	80%	11	11	!!	11	li .
7685	11	11 .	11	11	11	11	11	11	11	17
7686	11	11	. 11	11	75%	11	11	11	11	11
7687	ij.	tt	11	11	75%	11	11	11	11	!!
7688	11	†!	1'	11	11	†1	11	1*	11	11 (
7689	***	11	11	11	80%	T t	11	11) 1.	Į,
7690	ļ'	† †	11	11	75%	Med	Fair		11	"
7691	ŧŧ	11	11	11	80%		11	tī	11	11
7692	ŧŧ	††	ři j	11	75%	11	Good	11	11	11
7693	11	11	11	11	80%	11	11	11	11	11

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	Camera #		Principal Point		Fwd	Sun	Photo	Approx. Tilt	Direction of	Description
	f Length mm	Photo Scale	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	
7694	500	1:1,222,000	3.8°s	17.4°W	85%	Med.	Good	5–10 [°]	WSW	Southwest of Fra Mauro t. and Southeast of Fra Mauro J. Partial Frame
7695	11	11	11	11	11	11	11 .	11	11	11
7696	11	11	Ħ	11	80%	11	11	11	Ħ	17
7697	- 11	11	11	11	85%	11	11	11	11	ir .
7698	††	11	11	. 11	90%	17	11	11	ŤŤ.	- 11
7699	11	11	ŗ:	11	80%	יו	į,	11	11	11
7700	11	11	11	ft	85%	. 11	1*	11	. 11	11
7701	r	- 11	1.	tt	r	11	1'	11	11	1"
7702		11	! '	11	1.	1!	11		11	II.
7703	11	Ħ	11	11	11	11	11	17	11	11 (
7704	11	11	11	ft	90%	11	ti .	11	11	n
7705	11	11	11	11	80%	11	11	11	11	И
7706	11	11	11	11	95%	Low	Good	18	SWS	11
7707	11	11	11	11	11	11	11	11	11	μ
7708	ţı	11	יין	11	11	1.	r	!	1"	II

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Magazine S Film B&W (S0164)
Time Reference — GET — = GMT —

Frame #	Camera # f Length	Approx. Photo Scale	P	ncipal oint	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
	mm		Lat	Long		Aligie	Quality	Min — Max	Tilt .	
7709	500	1:1,222,000	3.8°s	17.4°W	95%	Low	Good	5-10°	WSW	Southwest of Fra Mauro G and Southeast of Fra Mauro J. (Partial Frame
7710	250	1:1,041,100	2.0°N	126°E	95%	11	Poor	60-70°	NE	Craters 283, 282 lookin Northeast. TO-4
7711	11	Ħ	1.6°N	125.9°E	ţ!	11	11	17	11	: H
7712	TI TO THE THE PROPERTY OF THE	TT			11	. 11	Fair	11.	!!	Unplottable due to photography
7713	11		***************************************		11	11	11		11	"
7714	ft	1:767,100	4.7°s	38.3°E	11	Med	Good	50-55°	NW	Censorinus F looking Northwest TO-14
7715	15	11	4.2°s	11	11	11	,,	11	tt .	* I
7716		1:767,100 1:907,600	3.7°s	22.2 ⁰ E	11	11	††	55-61°	N	Hypatia looking North TO-16
7717	11		3.1°s	21.2°E	TT.	11	ff .	11		Alfraganus D.F.G. & Hypatiac, look North TO-16
7718	11	-:907,600 -:1,041,100	2.5 ⁰ S	20.0°E	80%	11	†1	61-65 ⁰	NNW	to 10-16 TO-16
719		:907,600	11	21.5°E	80%	. 11	tf.	60-65 ⁰	N	Alfraganus F. looking N to Hybatia C. & Sabine TO-15
720			4.1°s	20.9°E	80%	11	11	31-35 ⁰		Alfraganus D, F, & G looking N. TO-16
721	11		3.0°N	14.3°E	95%	High	Good	65-71°		d'arrest looking N to Rima Ariadaeus
722		1:907,600 1:041,100	3.3°N	14.5°E	90%	High	Good	61-65 ⁰		d'Arrest looking N to Rima Ariadaeus
723	11	1:907,600	0°.	6.1°E	95%	Med	11	60-65°		Lade looking N to Agrippa TO-22

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Magazine S Film B&W (S0164)

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Frame #	Camera # f Length	Approx. Photo Scale		icipal pint	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
	mm	Thoro ocure	Lat	Long	0/2	Angle	Quality	Min — Max	Tilt	
7724	250	1:907,600	.08 ⁰ 1	18.2 ⁰ E	80%	Med	Good	60-65°	NNE	Western Edge of Lade Looking N to Dembowski TO-22
7725	11	11	.02N	7.2°E	11	11	11	11	NW	Directly W of Lade Godi Lambowski 10-22 N aci
7726	11	1:1,041,100	•7°N	3.5°E	60%	High	11	11	NW	Rhaeticus looking NW across Triesnecker
7727	` II	11	.7°N	4.5°E	65%	11	11	11	11	11
7728	11	# The second sec	6.8°N	3.1°W	95%	Med	11	11	N	Pallas, Bode looking N to Rima Bode I TO-28
7729	11	11	6.8°N	4.1 ⁰ W	90%	11	11	11	11	Rima Bode IV looking N to Rima Bode 128 Bode N & Bode B. TO-28
7730	11	11	8.9°N	5.1°W	85%	· 11	11	11	NW	Rima Bode IV looking NE to Sinus Aestuum TO-28
731	ţt	1:1,041,100 1:1,351,500	5.7°N	7.7°W	90%	ıτ	11	65-71°	NW	Schroter looking North to Schroter C & Sinus Aestuum.
732	11 .	11	5.0 ⁰ N	8.4°W	85%	11	11	† †	11	Schroter G looking N to Schroter C & Sinus Aest
733	ft	1:1,041,100	5.0°N	8.6°W	90%	11	11	11	N	11 (
734	11	f1	5.4°N	9.9 ⁰ W	85%	11	11	11	N	11
735	11		9.7°N	19.7°W		. 11	11	65-71°	NNW	Copernicus & Copernicus H looking NW
736			1.4 ⁰ N	15.3°W		11.	11	55-61 ⁰	N	Gambart looking N & including Gambart EA TO
737		L:622,200 L:699,200	1.0°N	ıs.8°w		11	11	45-51°	NW	Gambart A looking NW
738	11	L,041,100 L,351,500	9.6°n	19.3°W	80%	11	11	65-71°	N	Copernicus TO-37

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Magazine S Film B&W (S0164)

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Frame #	Camera # f Length	Approx. Photo Scale		ncipal pint	Fwd	Sun	Photo	Approx. Tilt	Direction of	Description
77	mm	Photo Scale	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	
7739	250	1,041,100	10°N	20 ⁰ W	80%	Med	Good	60 - 65°	N	Copernicus TO-37
7740	11	1,351,500	O.4°N	21.7 ⁰ W	.80%	11	11	70 – 75 ⁰	N N	
7741	11	907,600 1,041,100	6.5°N	294 ⁰ W	85%	ff	11	61-65°	11	Hortensius B looking N to Milichius
7742	* ! !	1,041,100	6.8°n	20.0 W	11	11	11	††	NW	n n
7743	††	907,600	n.4°n	31.3°W	80%	11	11	11	N	Milichius & Milichius A
7744	11	1,041,100	7.2°N	31.8 ⁰ W	80%	11	11	11	11	Milichius A
7745	II	1,041,100 1,351,500	8.3°N	38.3 ⁰ W		11	11	65-71°	NW	Kepler, Kepler A. Kepler F TO-43
7746	F 1	622,200 699,200	2.1°N	32.5°W		11	ti	45-51°	11	Kunowsky TO-42
7747	11	907,600	8.1°N	38.3°W		Ħ	π	60–65 ⁰	11	Kepler, Kepler F TO-43
7748		440,600 448,200	.07°N	36.5°W	80%	Low	ŧŧ	3-11°	SSW	Encke C TO-47
7749		699,200	4.5 ⁰ S	44.0°W	tt	. 11	11	50–55 ⁰	SE	T0-50 Flamsteed, Flamsteed B
7750	11	583,000	1.0°N	45.1°W	11	ŤŤ	†I	11	NW	Suess F TO-48
7751	11	1,351,500	6.4°N	53.1°W	11	11	. 11	70-75 ⁰	WNW	Reiner, Reiner A TO-53
7752	11	699,200	4.4°N	47.3°W	80%	11	tt	50-55°	NW	Suess, Suess D
7753	1,	11	5.09V	43.2°N	30%	r	ŧ;	t!	r.	Suess

APOLLO 12 PHOTOGRAPHY
Magazine S Film R&W (S0164)

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Frame	Camera #	Approx.		cipal oint	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
#	f Length	Photo Scale	Lat	Long	U/ L	Angle	wuunny	Min — Max	Tilt	
7754	250	1,041,100 1,227,800				Low	Fair	65-70 ⁰	NW	West Central Ocean of Storms near Terminator (not plottable)
7755	11					11	Jood but		W	11
7756	11	907,600	7.0°N	54.2°W		11	Good but partiall blurred	y 60–65 ⁰	WSW	Reiner Looking North TO-53
7757	11	11	12.8 N	50.3°W	80%	Med	11	11	N	Marius TO-52
7758	11	907,600 1,041,100	7.9°N	54.9°W	80%	Low	11	61-65 ⁰	W	Reiner Looking NE TO-53
7759	11	11	13 . 9 n	51.5 ⁰ W	80%	11	11	11	N	Marius TO-52
7760	11							·		Photography Blurred Not Plottable
7761	11									Not Plottable, Blurred
7762	11	11				·				Not Plottable, Blurred
		word that the top was the company or any major of the Called Call								
COMPANY STATEMENT COMPANY										
									المراث المراد	
		The state of the s							annicación de la companya de la comp	

MAGAZINE T

(Frames AS12-54-7948 thru 8120)

Magazine T is 70mm black and white photography of the lunar surface, taken from the Command Module. The entire magazine is a near vertical stereo strip photographed with an 80mm lens. The approximate coverage is from 125°E 3°S to 55°W 3 N. The quality of the photography ranges from poor to good with sun angles from low to high.

Frames 8083 thru 8091 contain the north tip of Fra Mauro to Landing Site 7.

Site 5 is shown on 8108-3109. The Target of Opportunity coverage is as follows:

Number 8 on frames 7954-7957; Number 13 on 8028-8029; 15 on 8033-8035;

18 on 8048-8051; 23 on 8056-8059; 26 on 8065-8066; 27 on 8068-8070; 32 on 8075-8077; 35 partially imaged on 8083-8084; 39 on 8087-8098; and 48 on 9108-3111.

APOLLO 12 PHOTOGRAPHY
Magazine T 70mm Film S0-164 B&W

Time Reference — GET ____ = GMT ____

Frame #	Camera # f Length	Approx. Photo Scale		ncipal pint	Fwd O/L	Sun	Photo	Approx. Tilt	Direction of	Description
	Lengin	Photo Scale	Lat	Long	0/ L	Angle	Quality	Min — Max	Tilt	
7948	80mm	1:1,376,900	3°S	123°E	60	Low	Poor	Near Vert	Near Vert	Not Usable (Too dark)
7949	ŧt	11	4 ^o s	121 ° 5E	60	Low	Poor	Near Vert	Near Vert	Stereo Strip Usable (Dark)
7950	11	tt	4 ^o s	121 ⁰ E	65	Ħ	11	11.	n,	Stereo Strip Usable (Dark)
7951	11	11	4°5S	120° E	65	11	11	11	11	Stereo (SE of 277) Strip Usable (Dark)
7952	11	. 11	4 <mark>°</mark> 5S	119 ⁰ E	60	Ħ	11	11	tt _	Stereo Strip,SE of 277
7953	tt	. 11	4°58	117 9 5E	65	Ħ	11	11	11	Stereo Strip, SE of 277
7954	Ħ	11	5º S	116°5E	70	71	11	11	11	Stereo (T.0.8) SSE of 277
7955	t1	Ħ	50 S	116 ⁰ E	70	11	. 11	11	11	Stereo So. Par Strip (T.0.8) of 277
7956	11	17	5 <mark>°</mark> 5S	115 ⁰ E	65	11	Ħ	11	ţ t	Stereo Strip (T.0.8) So. Par of 277
7957	11	11	5°5S	114º E	65	11	11	11	11	Stereo So. Par Strip (T.0.8) of 277
7958	11	11	6 ^o s	113 ⁰ E	65	11	Fair	11	ff	Stereo Strip S.E. Part of 273
7959	11	n	6 ^o s	111°5E	65	11	fi	11	11	Stereo S Part of 273
7960	11		6 ^o s	110°5E	65	Ħ	11	11	11	Stereo S Part of 273
7961	**	İİ	6 ^o s	109 ° 5E	60	e tr	ıı .	11	11	Stereo S Part of 273
7962	11	TI.	6 <mark>°</mark> 58	108 ° 5E	65	11	11	11	11	Stereo Strip SW of Crater 273

APOLLO 12 PHOTOGRAPHY
Magazine T 70mm Film B&W (SO 164) Time Reference — GET ____ = GMT ____

Frame #	Camera #	Approx.		ncipal pint	Fwd	Sun	Photo	Approx.	Direction of	Description
+1-	f Length	Photo Scale	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	200011711011
7963	80mm	1:1,376,900	6°5S	108 ⁰ E	65	Low	Fair	Near Vert	Near Vert	Stereo Strip SW of Crater 2
7964	80mm	1:1,376,900	7° S	107°E	65	Low	Fair	Near Vert	Near Vert	Stereo Strip SW of Crater 27
7965	11	11	7 ⁰ 018	106 ⁰ E	65	Ħ	11	11	ŧŧ	11 11
7966	ff	11	7 ⁰ S	105°E	70	††	11	ti	11	tt tt
7967	11	11	7 ⁰ S	104 ⁰ Е	65.	11	11	11	11	Stereo Strip SE of Crater 27
7968	11	11	7 <mark>9</mark> 58	103 ⁰ E	62	11	11	11	11	Stereo S of Crater 27
7969	11	11	7 <mark>°</mark> 5S	102°0'E	65	lt.	11	11	II	II II
7970	11	. 11	8º S	101°E	65	11	11	11	11	II II
7971	11	11	8° S	100°E	62	11	11	11	11	" SW of Crater 27
7972	ŧŧ	11	8º 01S	99°E	65	11	11	11	11	11 11
7973	11 .	tt	8°S	98°E	68	11	Ħ	11	11	11 11
7974	11	17	8°0'S	97°E	65	††	11	11	11	" SE of Crater 26
7975	tt	11	8°S	96°0'E	65	Med.	Good	11	11	tt tt
7976	Ħ	11	8°5S	95 ⁰ E	62	Med.	Good	1	11	SE Part of Crate
7977	n	11	8°5S	94 ⁰ E	62	11	11	tt.	TI .	11 11

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APOLLO 12 PHOTOGRAPHY
Magazine T 70mm Film B&W (SO 164)

Time Reference — GET ____ = GMT ____

Frome #	Camera #	Approx.		ncipal oint	Fwd	Sun	Photo	Approx.	Direction of	Description
#	f Length	Photo Scale	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	beson prion
7978	80mm	1:1,376,900	8°,5S	93 ^o E	67	Med.	Good	Near Vert	Near Vert	Stereo S Part of Strip Crater 266
7979	11	11	9°s	92 ⁰ E	65	17	11	11	11	11 11
7980	11	11	9°S	90°5E	65	11	tt .	II	11	Stereo SW of Crater Strip 266
7981	11	II	9 ^o s	89°5E	65	71	11	11	11	" SE of Crater 263
7982	ff .	11	9°0'S	88°5E	65	11	11	11	ii.	11 11
7983	ti	11	9°s	87 9 5E	65	tt	11	11	11	TT PE
7984	11	Ħ .	9 9 5S	86°5E	65	11	11	11	Ħ	" S of Crater 263
7985	n	11	9°5s	85°5E	65	11	tt	11	. 11	11 11
7986	11	11	9°5S	84°5E	65	tt .	11	11	11	u t
7987	II.	Ħ	10 ⁰ S	83°5E	65	71	IT	#1	11	tt tt
7988	11	Ħ	10 ⁰ S	82 ⁰ E	63	11	Ħ	Ħ	11	SW of Crater 263
7989	11	Ħ	10°s	81 ⁰ E	65	t1	lt .	<u> </u>		H H
7990	11	.H	10 ⁰ 0 'S	80°E	65	Ħ	11	11	11	La Perouse E Ansgarius M Shown
7991	11	11	10 ⁰ S	79°E	65	11	. II	11	11	11
7992	11	11	10°s	78°E	65	11	11	11 -	73	11

APOLLO 12 PHOTOGRAPHY Magazine T 70mm Film B&W (SO 164)

Time Reference — GET ____ = GMT ____

Frame #	Camera # f Length	Approx. Photo Scale		n cipal oin t	Fwd	Sun	Photo	Approx.	Direction of	Description
	Lengin	Filoto Scale	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	2 COO. 1917 OII
7993	80mm	1:1,376,900	10°S	77°0'E	65	Med.	Good	Near Vert	Near Vert	La Perouse
7994	11	Ħ	10 ⁰ S	76°0'E	65	ŧŧ	11	ff.	11	lt .
7995	11	*1	10 ⁰ S	75 ⁰ E	65	11	11	11	II	11
										Stereo Frames 7996- Strip 8011
7996	80mm	1:1,376,900	10 ⁰ S	74 ⁰ E	-	Med.	Good	Near Vert	Near Vert	West Part of LaPerouse Crater
7997	11	11	10°5S	73 ⁰ 0'E	65	11	. 11	11	11	West of La Perouse
7998	11	11	10°58	72 ⁰ 01E	65	11	11	11	11	Crater Kapteyn Shown
7 999	11	11	10°5S	71°E	65	ŧŧ	11	11	n	Ħ
8000) t	11	10°5s	70°E	65	11	11	11	Ħ	II.
8001	17	ll .	10 ° 5S	69° E	رّن	11	11	11	11	Crater Langrenusa
8002	"1		11ºS	óక ⁰ ∂¹E	65	11	11	11	11	II .
8003	TI .	11	10°5s	67 ⁰ E	57	111	11	11	ft.	Craters Langrenus A and G Shown
8004	ti .	n	11°S	66 ⁰ E	65	11:	11	Ħ	li .	TI .
8005	11	11	11°s	စ်ဉ် ^ဝ E	65	11	11	11	11	Craters Langrenus A, G, and P Shown
8006	Į!	ff	11 ^o s	64 ⁰ E	63	11	ŧi	"	11	Also S. " tip of Langrenus

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77	r Cengin	Thoro Scare	Lat	Long	0, 5	Aligie	Quality	Min — Max	Tilt	
8022	80mm	1:1,376,900	11 ^o s	57°5Ē	ö 5	Med.	Fair	Near Vert	Near Vert	Sea of Stereo Fertility Strip
8023	. 11	Ħ	11 ⁰ S	45 <mark>°</mark> 5E	65	Ħ	11	7 11	11	11 11
8024	11	. 11	11 ^o s	44°5E	6 5	Ħ	11	††	11	Gutenberg " D
8025	11	11	10°5s	43°5E	65	High	11 .	11	11	11 11
8026	11	Ħ	11 ⁰ S	43 ⁰ E	65	Ħ	11	tt	11	11 11
8027	11	11	11 % 'S	42 ⁰ E	ΰΰ	11	11	11	11	11 11
8028	11	Ħ	11 ⁰ S	40°5E	65	11	11	11	. 11	Stereo Strip (T.O. 13)
80.29	#11	! }	11 ⁰ S	39°5E	65	11	11	. 11	11	" (T.O. 13)
80 <i>3</i> 0	11	11	10°5S	38°5E	65	11	11	ŧī	11	" Gaudibert Crater
80,31	Ħ	11	10°5s	37°5E	65	.11	11	. 11	11 -	11 11
8032	11	?1	10°5S	36°5E	6ŏ	- 11	11	II	11	11 11
8033	Ħ	11	10°5S	35°5E	65	tt	11	11	11	" (T.O. 15)
8034	11	†1	10°5s	34°5E	ό 5	11	11	11	11	(T.O. 15) " North Portion of Paguerre
8035	ti	11	10 ⁰ S	33 <mark>°</mark> 5E	ა5	Ħ	11	11	11	" (T.O. 15)
8036	11	11	10°s	32°5E	65	11	11	11	11	North Portion of Paguerre

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Frame #	Camera # f Length	Approx. Photo Scale		icipal oint	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	De	escription
"	Length	1 11010 Scale	Lat	Long	0/ L	Aligie	Quality	Min — Max	Tilt		
8037	80mm	1:1,376,900	10 ⁰ s	31 ⁰ 0'E	ნ 5	lligh	Fair	Near Vert	Near Vert	Stereo Strip	Crater Madler
8038	11	11	10 ⁰ S	30°E	6 5	11	11	11	71	11	ti
8039	11	11	10 ⁰ S	29 ⁰ E	زَن	11	11	11	11	11	ff ·
8040	tī	11	10 ⁰ S	28 ⁰ 0'E	63	11	Ħ	11	11	11	Crater Madler (North half of Theophilus)
8041	11	11	10°S	27 ⁰ E	65	ŧı	n	. 11	11	11	North Half of Theophilus
8042	11	II .	10 [°] S	26°5E	65	Ħ	Poor	Ħ	11	111	n
8043	11	.11	9 ^o s	25 ⁰ E	65	Ħ	11	ŧī	ŧŧ	t1	· ft
8044	11	11	8 <mark>0</mark> 5S	24 ⁰ E	56	tt	11	. 11	tt .	11 .	NW of Theophilus
3 045	11	11	8°.5s	23 ⁰ 0'E	63	11	11	11	11	11	Kant C Crater
80,46	11	11	8 <mark>0</mark> 5S	22 ⁰ E	6 5	11	11	11	11	11	. 11
8047	11	11	9 ^o s	21 [°] E	5 5	11	11	.11	ti	11	Kant Crater
8048	11	11	9 ^o s	19°5E	65	11	11	11	11	ti	Kant G Crater
8049	17	11	9 ^o s	19 ⁰ E	6 5	11	11	11	11	ŧī	(T.O. 18)
8050	ff ·	11	9°s	18 ⁰ E	6 5	ti	11	11	tt	11	11
8051	11	11	9 ^o s	17 ⁰ 01团	ć۶	11	11	tt	Ħ.	t1	11

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Frame #	Camera # f Length	Approx. Photo Scale		i cipal pint	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	De	escription
TT*	Lengin	Photo Scale	Lat	Long	0/ L	Angle	Quality	Min — Max	Tilt		
8052	80mm	1:1,376,900	9°s	16 ⁰ E	65	High	Poor	Near Vert	Near Vert	Stereo Strip	S 3/4 of Dolland B
8053	11	11	9°s	15 ⁰ E	65	11	11	11	11	u D	olland Crater
8054	?1	Ħ	8 ^o s	13°5E	65	11	11	11	99	ii D	olland B Crater
8055	. 11	11	8 ^o s	13 <mark>°</mark> 5E	65	11	11	!!	11	n. V	ndel F Crater
8056	. 11	ŧ1	8 ^o s	11°5E	65	11	II	Ħ.	11	ti	11
8057	. 11	11	8001S	10°5E	65	ff	11	ti	11	. 11	E. of Hind (T.O. 23)
8058	11	!!	8 ^o s	9 ⁰ E	65	11	11	Ħ	Ħ	11	TT
8059	11	11	8°.58	8°E	65	Ħ	††	11	ff	11	Crater Hind (T.O. 23)
8060	11	ŧ1	7°5S	7°5E	65	17	Ħ.	11	11	Ħ	Crater Hind Shown
8061	11	11	7 <mark>°</mark> 58	6°.5E	65	ft .	11	Ħ	11	††	Craters Hine & Halley
8062	11	? †	7 ^o s	5°.5E	65	11	†f	Ħ	11	ff	Crater Halley
8063	Ħ	ff.	7 ^o s	4 ⁰ E	65	Ħ	Fair	11	11	ff	Hipparchus
8064	II	11	7 ⁰ 0'S	3°5E	65	††	II	ŧī .	TI .	11	материя по под предоставления по под под под под под под под под под
8065	11	II	7°s	2°.5E	65	Ħ	11	tt .	31	ti .	Crater Muller (T.O. 26)
8066	11	?f	6°.5s	1°.5E	65	11	. 11	· · · tt	11	řř.	(T.O. 26)

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Frame #	Camera # f Length	Approx. Photo Scale		cipal int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
	Lengin	riioio Scale	Lat	Long	0, 2	Milgie	Quality	Min — Max	Tilt	
8067	80mm	1:1,376,900	6°s	0°E	65	High	Fair	Near Vert	Near Vert	Stereo East of Strip Herschel
8068	11	11	6 ^o s	1 ⁰ W	65	11	11 -	11		" Crater Herschel (T.O. 27)
8069	11	n	6 ^o s	2 ⁰ W	68	11	Good	n ·	TI -	п
8070	11	II .	6°s	3 ⁰ W	65	11	ŧ1	n	11	11 11
8071	. 11	11	6°s	4°W	65	tī	ff	11	n	11 11
8072	11	11	6 ^o s	5°W	65	Med.	11	11	"	" Herschel D
8073	11	11	5°.5S	6 ⁰ W	65	Ħ	11	11	11	" La Lande C
8074	11	11	5°5S	7 ⁰ W	65	* 11	11	п	11 .	11 11
8075	FF .	11	5 ^o s	8 ⁰ W	65	11	11	11	11	" Crater La Lande (T.O. 32)
						1.38 - 384				Stereo Frames 8076 - Strip
8076	11	11	5 ^o s	9°W	65	Med.	Ħ	Near Vert	Near Vert	Crater La Lande (T.O. 32)
8077	11	TT	5 ^o s	10 ⁰ W	65	11	11	Ħ	11	West Half " of La Lande
8078	11	11	4°58	11 ⁰ W	65	11	††	Ħ	11	West of La Lande and NE of Fra Mauro
8079	11	11	4°5S	12 ⁰ W	65	11	11	11	11	11
8080	11	11	4ºS	13 ⁰ W	65	Low	11	11	11	NE of Fra Mauro

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Frame	Camera # f Length	Approx. Photo Scale		cipal int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
***************************************	Longin	Thoro ocure	Lat	Long				Min — Max	Tilt	
8081	80mm	1:1,376,900	4°s	14 ⁰ W	65	Low	Good	Near Vert	Near Vert	NE of Fra Mauro
· 8082	11	11	4 ^o s	15 ⁰ W	65	11	11	11	11	Northern Section of Fra Mauro
8083	11	11	4 ^o s	16 ⁰ W	65	11	11	11	11	Northern Tip (T.O. 35 of Fra Mauro Partical)
8084	11	Ħ	3°58	17 ⁰ W	65	11	11	11	11	n
8 085	11	11	3 ^o s	18 ⁰ W	65	11	. 11	11	n	Fra Mauro J
8086	. 11	11	2°.5S	19 ⁰ W	65	11	11	11	11	Crater Fra Mauro J
8087	11	11	3°5S	20°W	65	17	Fair	11	11	(T.O. 39)
8808	11	11	3°s	21 ⁰ W	6 <u>5</u>	11	11	11	11	11
8089	17	Ħ	2 ⁰ S	22 ⁰ W	65	11	11	11	11	n
8090	11	11	2 ^o S	23 ⁰ W	65	11	11	11	11	Site "
8091	11	11	3 ^o s	24 ⁰ W	65	. 11	11	11	11	u v v
										Stereo Stri p Frames 8092 - 8107
8092	80mm	1:1,376,900	2 ^o s	25 ⁰ W	65	Low	Fair	Near Vert	Near Vert	(T.O. 39)
8093	tt	11	1°58	26 ⁰ W	65	11	11	, tt	11	n
8094	11	11	2 ^o s	27°W	70	!!	Ħ	11	11	South Half " of Lansberg

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Frame #	Camera # f Length	Approx. Photo Scale		ncipal oint	Fwd O/L	Sun	Photo	Approx. Tilt	Direction of	Description
		. Hoto ocute	Lat	Long	0/1	Angle	Quality	Min — Max	Tilt	Description
400 F										Stereo Strip Frames 8092-8107 Contid
8095	80mm	1:1,376,900	1°.58	28 ⁰ W	70	Low	Fair	Near Vert	Near Vert	South Half of Lansberg (T.O. 39)
8096	11	11	1°58	25°W	70	11	Ħ	II	11	n
8097	11	.n	1°5s	30°w	65	II	11	11	11	H.
8098	11	II	1°s	31°W	65	lt .	11 ·	11	n .	TI TI
8099	11	11	1°s	32 ⁰ W	60	11	17	. TF	Ħ	Lansberg A & Kunowsky
8100	#	11	0°5S	33 ^o w	65	11	11	11	11	Kunowsky C
8101	lt .	11	0°	34 ⁰ W	65	11	11	ff	11	Lansberg F, C, & E of Enckec
8102	11	11	0°	35°W	65	11	11	ii .	11	11
8103	ff .	. 11	0°5N	36°w	65	11	11	11	11	Encke C
8104	11	11	0°	36°5W	65	11	11	11	tt .	11 4
8105	II.	11	0°5N	37°5W	65	11	11	"	11	West of Encke C
8106	II .	11	1°N	38°5W	70	11	11	n	11	East of Encke E
8107	11	11	1°N	40°W	65	n	11	11	Ħ	Encke E & Maestlin G
8108	11	11	1°N	41°W	70	11	11	ri .	11	Stereo (T.O. 48)

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Frame #	Camera # f Length	Approx. Photo Scale	Po	cipal int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of Tilt	Description
			Lat	Long				Min — Max		Stereo (TO 48)
8109	80mm	1:1,376,900	1°5N	42 ⁰ W	70	Low	Fair	Near Vert	Near Vert	Stereo (T.O. 48) Strip
8110	11	Į į	1°5N	43°W	65	11	ţı	11	11	f1 11
8111	11	11	2°n	43°5W	70	11	ti	11	. 11	n n
8112	11	\$ \$	2°N	45°5W	65	11	11	11	11	" Suess F Crater
8113	**	11	2 ⁰ N	46°W	70	11	11	TI	11	" West of Suess F Crater
8114	11	11	2°5N	47°W	70	11	11	11	11	" East of Reiner E Crater
8115	11	### TT	2°5N	48 [°] W	70	11	Poor	ŧī	11	" Reiner E Crater
8116	19	* 11	3 ⁰ N	49 ⁰ W	70	11	11	11	11	11
8117		††	3°N	50°W	70	11	ff .	11	1f	" Southwest of Suess Crater
8118	11	11	3°5N	51°W	70	11	11	19	11	South of "Reiner A,Crater
8119	† ? .	TY	3°5N	52 ⁰ W	70	II	t!	11	11	Too Dark (Unuseable)
8120	11		THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PERSON NAMED OF THE PE					11	The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	11 11
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MAGAZINE U

(Frames AS-12-53-7763 thru 7947)

Magazine U of the Appollo XII photography consists of overlapping stereoscopic 70mm black and white imagery of Fra Maura (41 frames), Descartes (41 frames), Lalande (42frames), taken using a 500mm lens. The remaining frames of the magazine are: 4 frames of the moon, probably during transearth coast, and 57 frames of the solar eclipse, 10 of which exposed during a camera malfunction.

Quality of the Fra Mauro, Descartes, and Lalande 500mm imagery ranged from fair to poor on this generation film.

Targets of Opportunity no. 18 and 32 were photographed on this magazine.

APOLLO 12 PHOTOGRAPHY
Magazine U Film BW

Time Reference — GET — = GMT —

Frame	Camera # f Length	Approx. Photo Scale	Prin Po	cipal int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
# AS-12-5	3	Thoro Scare	Lat	Long				Min — Max	Tilt	
7763	500MM	1: 450,000	9.0°s	16.0°E	95%	High	Fair	30-60°	West	Descartes
7764	11	11	11	11	**	11	11	"	11	· ·
7765	11	, n	11	11	ff	11	11	11	? 1	11
7766	11	Ħ	11	11	Ħ	11	11	11	††	
7767	11	11	9.0°s	16.0°E	11	11	. 11	11.	11	11
7768	11	11	11	11	11	11	ti .	11	t1	11
7769	. 11	11	11	11	ff .	11	11	11	. 11	11
7770	11	1:350,000	9.0 [^] s	16.0°E	11.	11	11	11	11	tt .
7771	11	11	11	11	11	11	11	11	11	11
7772	. 11 .	11	11	11	11	11	11	11	11	11
7773	"	11	11	11	11	"	11	11	11	17
7774	11	11	11	11	11	11	11	11	11 to 2	11
7775	. 11	11	11	ţ:	11	!!	. 11	. 11	11	II
7776	11	11	"	- 11	11 .	n,	11	C=30°	11	11
7777	ţţ	11	11	17	"	11	11	11	11	11 1. EC 1296

APOLLO 12 PHOTOGRAPHY
Magazine __II ____B Film __BW___ Time Reference — GET _____ = GMT ____

Frame #	Camera # f Length	Approx. Photo Scale	Po	cipal int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
5-12-53		Thoro Scare	Lat	Long				Min — Max	Tilt	
7778	500 M M	1:350,000	9.0°5	16.0°E	95%	High_	Fair	0-30°	West.	Descartes
77 7 9	. 11	1:300,000	11	11	11	11	11	11	ii	11
7780	ii .	11	11	11	11	11	11	11	n	11
7781	11	11	11	11	11	11	11	11	11	II .
7782	n	11	11	- 11	11	11	11	17		11 ***********************************
7783	11 11 11	11	11 -	11	11	. 11	11	II	11	11
7784	11	11	. 11	. 11	11	11	11	11	11	11
7785	tt .	11	11	11	. 11	11	11	11	"	11
7786	. 11	11.	11	11	11	11	T!	11	11	11
7787	11-	11	11	11	11	11	11	11	11	11
7788	11	11	"	tr .	11	11	11	11	11	
7789	11	11	"	11	!!	11	"	11	11	11
7790	11	11	11	11	11	11	††	11	11	11
7791	11	11	11	11	11	11	"	11	. 11	
7792	11	. 11	17	11	11	11	11	11	11	11 1 FC 1296

APOLLO 12 PHOTOGRAPHY
Magazine ____ Film __BW ___
Time Reference __ GET ____ = GMT ____

Frame #	Camera # f Length	Approx. Photo Scale		cip al int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
# AS12-53	i Lengin	Filoto Scule	Lat	Long	07 L	Viidie	Quanty	Min — Max	Tilt	
7793	500MM	1:300,000	9.0°s	16.0°E	95%	High	Fair	0~30°	West	Descartes
7794	. 11	1:222,000	. 11	, 11	11	11	ŧı	0 –2 0°	11	11
7795	11	11	11	11	11	11	11	11	11	11
7796	11	. 11	11	. 11	Ħ	11	11	11	11	
7797	11	tt ·	11	11	11	11	11	11	" .	· '11
7798	11	II.	11	11	11	11	††	11	11	tt
7799	11	11	11	t1	11	11.	11	11 :	11	!!
7800	11	11	11	11	11 .	11	11	11	11	n .
7801	11	11	11	11	11	11	. 11	11	11	
7802	11	11	11	11	11	11	11	11	11	
7803	11	11	11	11	11	11	11	11	. 11.	
7804	11	1:450,000	3.5°S	18.0°W	11	11	11	55-65°	West	Frau Mauro
7805	11	11	11	11	11:	11	17	55-60°	"	11
7806	11	11	tt.	11	11	11	11	11	11	11
7807	11	11	"	11	. 11	t†	11	50-55°	11	11

APOLLO 12 PHOTOGRAPHY

Magazine ____ Film __RW ____

Time Reference — GET ____ = GMT _____

Frame # AS12-53	Camera # f Length	Approx. Photo Scale		cipal int Long	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt Min — Max	Direction of Tilt	Description
AS12-53 7808	500MM	1:450.000		18.0°W	95%	High	Fair	52°	West	Frau Mauro
7809	11 '	1:349,600	11	11	11	Ħ	11	50°	11	TÎ .
7810	11	1:325.000	.11	11	11.	11	n	48°	11	11
7811	11	11	11	11	11	11	11	4 6°	ff .	11
7812	11	11	11	Ħ	11	11	11	44°	11	11
7813	ţ;	11	11	. 11	11	11	11	42 ⁰	11	11
7814	11	1:283,000	11	11	11	11	11	40°	n	11
7815	11	11	. 11	11	11	11	11	38°	11	11
7816	11	11	11	11	91 -	11	11	36°	- 11	### The second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second o
7817	11	11	11	11	11	11	11	34°	. 11	11
7818	11	11	11	11	11	ti .	11	32°	11	1!
7818 7819	11	1:250,000	11	"	11	11	"	30°	11	11
7820	11	11	11	11	11	11	. 11	28 ⁰	11	11
7821	11	11	"	11	11	tt	11	26°	11.	11
7822	11	11	11	n	17	!!	11	24°	11	11 FC 12969

APOLLO 12 PHOTOGRAPHY

Magazine ____ Film __BW ___

Time Reference — GET ____ = GMT ____

Frame	Camera #			cipal int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
# AS12-53	f Length	Photo Scale	Lat	Long	U/L	Angle	Quality	Min — Max	Tilt	
7823	5.00MM	1:250,000	3.5°S	18.0°W	95%	High	Fair	22 ⁰	West	Fra Mauro
7824	11	1:232,000	11	11	11	11	11	20°	11	1t
7825	11	11	11	: 11	11	- 11	11	18 ⁰	11	11
7826	rt .	1:227,000	11	11	. 11	11	"	16°		11
7827	tt	. 11	11	. 11	11	17	"	14°	11	. 11
782 8	11	tt	11	11	11	11	11	12°	11	11
7829	11	11	11	11	11	11	11	10°	11 11	11
7830	"	11	"	11	11	11	11	.8°	11	11
7831	11	11	11	11	11	11	11	6°	11	11
7832	. !!	tt .	11	11	"	"	11	14°	11	11
7833	††	11	11	11	"	tt	11	2°	11	II .
7834	11	11	tt	11	11	ţĭ	11	00	Vert.	11
7835	11	1:222,000	11	11	11	. 11	11	o°		11
7836	11	11	11	11	11	11	11	00	11	11
7837	11	11 -	11	11	ıı	11	11	0	11	LEC 12

Frame #	Camera # f Length	1		oipal oint	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
AS12-53	. 20119111	Thoro ocure	Lat	Long	O/ L	Angle	Quality	Min — Max	Tilt	
7838	500MM	1:222,000	3.5°s	18.0°W	95*	High	Fair	2°	West	Fra Mauro
7839	11 '	11	11	11	11	11	11	4°	11	II
.7840	11	11	11	. 11	11	. 11 -	11	6°	11	11
7841	P†	II .	11	!!	11	11	11	80	11	11
7842	######################################	11	11	. 11	11	. 11	11	go	11	Fra Mauro Area
7843	11	11	11	11	11	11	. 11	10°	11	11
7844	11	TI	11	11	11	11	11	10°	11	11
7845	TT	1:450,000	5.0°s	9.5°W	11	11	11	30-60°	West	LaLande Crater
7846	11	***	11	11	71	11	18	11	. 11	tt.
7847	***	11	11	11	11	11	11	11	11	TT
7848	11	11	11	11	11	11	11	11	11	11
7849	TT	11	11	ŧŧ	11	11	f†	11	11	11
7850	11		It	i i	11	11	11	 11	11	TI
7851	11	11	11	ff.	11	11	11	11	11	11
7852	11	17	11	"	11	11	11	11	**	- The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the

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Frame	Camera #	Approx.	Prin Po	cipal int	Fwd	Sun	Photo	Approx. Tilt	Direction of	Description
AS12-53	f Length	Photo Scale	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	
7853	500MM	1:450,000	3.5°S	18.0°W	95%	High	Fair	3 0– 60°	West	LaLande Crater
7854	11	1:300,000	11	11	11	11	v 11	11	87	11
7855	11	11	11	, 11	11	Ħ .	11	11	11	11
7856	11	.11	11	11	11 .	- 11	TT	71	11	
7857	11	11	11	11	"	ŧŧ	. 11	11	11	11
7858	11	Harving Advance and other security and an advantage of the security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a security and a securit	5.0°s	9.5°W	11	High	Fair	20-30	11	11
7859	· 11	11	11	11	ŧŧ	11	11	11	11	11
7860	11	11	"	11	"	11	11	11	11	11
7861.	. 11	11	11	t!	11	11	11	11	. 11	11
78.62	11	11	11	11	11	- 11	11	11	11	
7863	11	11	"	11	11	"	11	11	tt	
7864	11	11	11	11	11	11	11	11	11	11
7865	11	11	"	11	11	11	11	11	11	. 11
7866	11	11	11	11	!!	11	11	11	11	11
7867	11	11	11	11	11	11	n	**	. 11	11

APOLLO 12 PHOTOGRAPHY

Magazine _U Film _BW ____

Time Reference — GET ____ = GMT _____

Frame # AS12-53	Camera # f Length	Approx. Photo Scale	Po	cipal int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt Min — Max	Direction of Tilt	Description
AS12-53 7868	500MM	1:300,000	Lat	De la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de	95%	High	Fair	20 - 30°	West	Lalande
7869	II	"	11	t1	11	11	TT .	11	11	11
7870		1:250,000	11	11	11	11	71	9-20°	tt .	11
7871	11	11	11	11	11	11	11	11	††	11
7872	PT	11	11	11	!!	11	11	11	11	11
7873	11	11	ît	11	11	tt	11	"	11	11
7874	TT	1:222,000	"	11	11	f1	II	0-15°	98	11
7875	11	11	11	f1	11	11	!!	11	11	II
7876	11	11	11	11	- 11	11	ti .	11	` 11	II
7877	11	11	11	11	. 11	11	11	11	11	
7878	11	11	i	11	11 .	11	11	11	11	ti
7879	TT	TT	11	11	11	11	ff ff	TT	11	11
7880	11	E I	11	11	11		TT	TT		11
7881	The Manager Strome concentration and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second sec		"	11	11	11	li.	11	11	II
7882	11	11	"	11	11	11	11	11	11	

Frame # AS12-53	Camera # f Length	Approx. Photo Scale		cipal int Long	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt Min — Max	Direction of Tilt	Description
7883	500MM	1:222.000			95%	Hi gh	Fair	0-15°	West	Lalande Crater
7884	11.	11	11	t!	11	11	11	11	11	11
7885	11		11	11	11	11	TT TT	11	11	11
7886	11	11	5.0°s	9.0°W	11	11	ŧ!	11	Fast.	
7887	80MM					11	Good			Full Moon during Trans Farth
7888	80MM					11	Good			Full Moon during Trans Earth
7889	11					11	Fair			Quarter Moon during Trans Earth
7890	11	Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Contro					Fair		·	Quarter Moon during Trans Earth
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7899	9.8					averor 1, warvege of the requisition and				11 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11 mm 11
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Frame	Camera #	Approx. Photo Scale	Prin Po	cipal int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
# AS12=53	f Length	Piloto Scale	Lat	Long	07.2	All git	400,	Min — Max	Tilt	Camera Malfunction
7913	80mm						Poor			during Solar Eclipse
79 1 4	11						11			11 11
7915	11			¢.			11			11 11
7916	11						11			11 11
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Frame #	Camera # f Length	Approx. Photo Scale	Prin Po	cipal int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
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7928	80mm	and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t		·			Good			Solar Eclipse
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7939	11						11			11 11
7940	11						11			11 11
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7942	11					درا مستعدم وإراستان أراء مردة ماييس		all the companies they are resultanced all the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the second and the seco	Seminary vinteriorappi interiora discultura	II II September in terreta de consistencia de

APOLLO 12 PHOTOGRAPHY
Magazine U Film BW

Time Reference — GET — = GMT —

Frame	Camera # f Length	Approx. Photo Scale	Prin Po	cipal int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
# AS12-53	i Lengin	Photo Scale	Lat	Long				Min — Max	Tilt	
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7945	11						11			11 11
7946	11						11			11 11
7947	ft .			·			11			11 11
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MAGAZINE V

(Frames AS12-47-6869 thru 7021)

The first 16 frames of this color magazine are high obliques of the lunar surface taken from the LM while in Lunar orbit. Target of opportunity Number 9 is included.

The remainder of this magazine illustrates the LM, deployed equipment, and the lunar surface around the landing area. Surface photography was exposed with the 60mm lens. Included are the following four panoramas taken near the landing area:

I. 47-6941 thru 6960

22 frame pan from NW at ALSEP to N at Flag, then to east with LM (Sunglint), and Surveyor Crater. Then to S and SW including Bench Crater.

II. 47-6961 thru 6981

22 frame pan NW from LM, E to Surveyor Crater and 360° pan back to LM.

III. 47-6982 thru 7006

25 frame pan, 360° taken from NE of LM looking W at panel and Flag, then to SW at LM and counterclockwise to S and W looking into Surveyor Crater. Then looking NW at TV and back to panel to complete 360° circuit.

IV. 47-7011 thru 7015

5 frame pan from NW to N showing from left to right blocky mound, ALSEP, Flag and Antenna.

APOLLO 12 PHOTOGRAPHY

Magazine V Film HCEX

Time Reference — GET — = GMT —

Frame #	Camera # f Length		Р	ocipal oint Long	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt Min — Max	Direction of Tilt	Description
6869	. 80			Long	90	М	Fair	60-70	S	Craters 285, 28 7, Tsiolkovski
6870	80				90	М	Fair	60-70	S	11
6871	80				90	М	Fair	60 - 7 0	W	Crater II
6872	80		e45		90	М	Fair	60-70	W	. ; ;
6873	80				90	М	Fair	60-70	W	11
6874	80				90	М	Fair	60-70	W	11
6875	80				100	L	Good	60-70	NE	Copernicus-Rheinhold
6876	80				100	L	Good	60-70	Ħ,	11
6877	80				100		Fair			CSM
6878	80				100	· · · · · · · · · · · · · · · · · · ·	Fair			tt
6879	80	And the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t			90	М	Fair	70- 80	W	T.O. 9, Crater II, Craters 276, 273
6880	80				90	М	Fair	70-80	W	11
6881	80				90	М	Fair	70-80	W	11
6882	80		· · · · · · · · · · · · · · · · · · ·		90	М	Fair	70-80	W	11
6883	80				90	М	Fair	70-80	W	II .

Sheet 2 of 11 Sheets

Frame #	Camera # f Length	 Po	cip al oint	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
	mm	Lat	Long				Min — Max	Tilt	
6884	80			90	М	Fair	70-80	W	T.O. 9, Crater II, Craters 276, 273
6885	80			90	М	Fair	70 –8 0	W	11
6886	80			90 .	М	Fair	70-80	W	11
6887	80	÷		90	М	Fair	70 –8 0	W	ŧ1
6888	80			90	М	Fair	70-80	W	11
6889	80	and the Policy of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the	74.00	90	М	Fair	70 –8 0	W ·	PT
6890	80			90	М	Fair	70-80	W	11
6891	. 80			90	М	Fair	70-80	W	ET
6892	80			90	М	Fair	70-80	W	11
6893	80			90	М	Fair	70-80	W	11
6894	80			90	М	Fair	70-80	W	tt
6895	80		**************************************	90	М	Fair	70-80	W	††
6896	60				Low	Good	Med. Obl.	W	Flag on Lunar Surface
6897	60				Low	Fair	Med. Obl.	W	11 11 11 11
6898	60				Low	Fair	Med. Obl.	W	Solar Wind Panel

Frame #	Camera # f Length mm	Approx. Photo Scale	Po	cipal int Long	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt Min — Max	Direction of Tilt	Description
6899	60					Low	Fair	Med. Obl.	W	LM
6900	60					Low	Fair	Low Obl.	E	LM Footpad
6901	60					Low	Fair	Low Obl.	E	11 11
6902	60					Low	Poor	Low Obl.	E	11 11
6903	60					Low	Poor	Low Obl.	E .	н п
6904	60					Low	Fair	Low Obl.	W	11 11
6905	60					Low	Fair	Low Obl.	W	H H
6906	60	:			2	Low	Fair	Low Obl.	W	11 11
6907	60					Low	Fair	Low Obl.	W	Engine Skirt
6908	60					Low	Fair	Low Obl.	W	LM Footpad
6909	60					Low	Fair	Low Obl.	W	11 11
6910	60					Low	Fair	Low Obl.	W	Lower LM Structure
6911	60					Low	Good	Low Obl.	W	Lower LM Structure
6912	60					Low	Poor	Med. Obl	W	Astronaut & LEC
6913	60		<u> </u>			Low	Poor	Med. Obl	W	n n

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Frame #	Camera # f Length	Approx. Photo Scale	Po	icipal pint	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt Min — Max	Direction of Tilt	Description
6914	 60		Lat	Long		Low	Poor	Med. Obl.	W	Astronaut & LEC
6915	60 .					Low	Poor	Low Obl.	E	LM Footpad
6916	60			. 1		Low	Fair	Low Obl.	W	ALSEP Deployment
6917	60					Low	Fair	Low Obl.	W	11 11
6918	60					Low	Fair	Med. Obl.	W	11 11
6919	60	желонно у Сибалов Метра I под под под под под под под под под под				Low	Fair	Med. Obl.	W	11 11
6920	60					Low	Fair	Low Obl.	W	11 11
6921	60					Low	Fair	Med. Obl.	W	11 11
6922	60					Low	Fair	Low Obl.	W	11 11
6923	60	_				Low	Fair	Low Obl.	W	11 11
6924	60					Low	Fair	Low Obl.	W	11 11
6925	60	·	·			Low	Fair	Low Obl.	W	11 11
6926	60	· · · ·				Low	Fair	Low Obl.	W	11 11
6927	60					Low	Fair	Low Obl.	W	11 11
6928	60					Low	Fair	Med. Obl.	E	и п

Frame #	Camera # f Length	Approx. Photo Scale	Principal Point Lat Long		Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt Min — Max	Direction of Tilt	Description
6929	mm 60		LUI	Long		Low	Good	Med. Obl.	· W	ALSEP Deployment
6930	60					Low	Fair	Med. Obl.	W	11 11
6931	60					Low	Fair	Med. Obl.	W	11 11
6932	60		ŗ			Low	Fair	Low Obl.	W	Lunar Surface
6933	60		,			Low	Fair	Low Obl.	W	11 11
6934	60					Low	Fair	Low Obl.	W	11 11
6935	60	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s				Low	Fair	Low Obl.	W	11 11
6936	60					Low	Fair	Low Obl.	W	11 11
6937	60					Low	Fair	Low Obl.	W	11 11
6938	60					Low	Fair	Low Obl.	W	11 11
6939	60			·		Low	Fair	Low Obl.	W	11 11
6940	60					Low	Fair	Low Obl.	W	11 19
6941	60					Low	Fair	Med. Obl.	W	Start 20 F ram e Pan Near LM
6942	60	·				Low	Fair	Med. Obl.	W	Start 20 Frame Pan Near LM
6943	60					Low	Fair	Med. Obl.		20 Frame Pan Near LM

Frame #	Camera # f Length	Approx. Photo Scale		cip al int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
TT-	mm	1 11010 00010	Lat	Long				Min — Max	Tilt	
6944	60					Low	Fair	Med. Obl.		20 Frame Pan Near LM
6945	60	·				Low	Fair	Med. Obl.	·	tt
6946	60					Low	Fair	Med. Obl.		11
6947	60		•			Low	Fair	Med. Obl.	·	II .
6948	60					Low	Fair	Med. Obl.		lt .
6949	60	Commission (Commission (Commission (Commission (Commission (Commission (Commission (Commission (Commission (Co		The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s		Low	Poor	Med. Obl.		11
6950	60					Low	Poor	Med. Obl.		11
6951	60	· .				Low	Poor	Med. Obl.		ti .
6952	60					Low	Poor	Med. Obl.		11
. 6953	60					Low	Poor	Med. Obl.		11
6954	60					Low	Fair	Med. Obl.		11
6955	60					Low	Fair	Med. Obl.		11
6956	60					Low	Fair	Med. Obl.		11
6957	60					Low	Fair	Med. Obl.		11
6958	60					Low	Fair	Med. Obl.		11

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Frame #	Camera # f Length	Approx. Photo Scale	Po	ici pal pint	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of Tilt	Description
COLD COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMMON COMM	mm		Lat	Long				Min — Max	1111	
6959	60					Low	Fair	Med, Obl.		20 Frame Pan Near LM
6960	60 -					Low	Fair	Med. Obl.		End of 20 Frame Pan Near LM
6961	60					Low	Fair	Med. Obl.		21 Frame Pan Near LM
6962	60					Low	Fair	Med. Obl.		11
6963	60					Low	Fair	Med. Obl.		11
6964	60		ź			Low	Fair	Med. Obl.		11
6965	60					Low	Fair	Med. Obl.		11
6966	60					Low	Fair	Med. Obl.		11
6967	60					Low	Fair	Med. Obl.		11
6968	60					Low	Fair	Med. Obl.		11
6969	60		·			Low	Poor	Med. Obl.		II
6970	60					Low	Poor	Med. Obl.	·	n:
6971	60					Low	Poor	Med. Obl.		, II
6972	. 60					Low	Poor	Med. Obl.		II
6973	60					Low	Poor	Med. Obl.		n .

APOLLO 12 PHOTOGRAPHY Magazine V Film HCEX Time Reference — GET — = GMT —

Frame #	Camera # f Length	Approx. Photo Scale		ncipal pint	Fwd O/L	Sun	Photo	Approx. Tilt	Direction of	
	mm		Lat	Long	0/ L	Angle	Quality	Min — Max	Tilt	Description
6974	60					Low	Poor	Med. Obl		21 Frame Pan Near LM
6975	60					Low	Poor	Med. Obl		
6976	60					Low	Fair	Med. Obl.		21 Frame Pan Near LM
6977	60	ACCOUNTY OF THE ACCOUNTY OF THE COUNTY OF TH				Low	Fair			11
6978	60					Low		Med. Obl		11
6979	60						Fair	Med. Obl		71
698 0	60					Low	Fair	Med. Obl		11
6981	60					Low	Fair	Med. Obl		n
6982	60					Low	Fair	Med. Obl	·	End of 21 Frame Pan Near LM
						Low	Fair	Med. Obl		Start of 25 Frame Pan Near LM
6983	60					Low	Fair	Med. Obl		25 Frame Pan Near LM
5984	60					Low	Fair	Med. Obl		"
985	60					Low	Fair	Med. Obl		
986	60					Low	Fair			II .
987	60							Med. Obl		II .
988	60					Low	Fair	Med. Obl.		11
						Low	Fair	Med. Obl		

Sheet 1 to 8 teads

n n		TdO •b⊕M	TisT	MoJ					09	£007
11		Wed. Obl.	aisA	Pow					09	7007
u		Med. Obl.	TisT	Pow					09	1007
u		.Wed. Obl.	risI	Low					09	0007
и		Wed. Obl	Poor	ron					09	6669
и		Wed• OpT	Poor	Pow					09	8669
11		Wed OpT	Poor	Pow					09	L669
11		Wed. Obl	Poor	Pow					.09	9669
ii .		Wed. Obl	Poor	Pow					09	5669
u		Wed. Obl	Poor	Low				·	09	7669
11	·	Wed. Obl	risA	Pow					09	£669
н		Med. Obl.	risT	Pow					09	z669
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MJ 189M Ran Pan Jear LM		Med. Obl	1184	Pow					09	68 69
Description	Direction fo fliT	Approx. Tilt Max	otod9 Quality	nu2 elpnA	Fwd O/L	logic tai paod	ેત	Approx.	# bismbO dtpas_ i dtpas_ i	этол #

APOLLO 12 PHOTOGRAPHY
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Frame #	Camera # f Length	Approx. Photo Scale		icipal pint	Fwd O/L	Sun	Photo	Approx. Tilt	Direction	Description
***	mm	Photo Scale	Lat	Long	U/L	Angle	Quality	Min — Max	Tilt	
7004	60					Low	Fair	Med. Obl.		25 Frame Pan Near LM
7005	60		·			Low	Fair	Med. Obl.		tt .
7006	60					Low	Fair	Med. Obl.		End of 25 Frame Pan Near LM
7007	60					Low	Good	Low Obl.	E	Core Tool
7008	60					Low	Good	Low Obl.		11
7009	60					Low	Poor	Low Obl.		Astronaut
7010	60					Low	Poor	Low Obl.		11
7011	60					Low	Fair	Med. Obl.		Start 5 Frame Pan Near LM
7012	60					Low	Fair	Med. Obl.		5 Frame Pan Near LM
7013	60					Low	Fair	Med. Obl.		n
7014	60					Low	Fair	Med. Obl.		11
7015	60					Low	Poor	Med. Obl.		End of 5 Frame Pan Near LM
7016	60					Low	Poor	Med. Obl.		LM Thruster & Antenna
7017	60					Low	Poor	Med. Obl.		11
7018	60					Low	Fair	Med. Obl.		11

Frame #	Camera # f Length	Approx. Photo Scale	Prin Po	cipal int	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
77	nm	Filoto Scale	Lat	Long	0, 1	Aligie	Quanty	Min — Max	Tilt	
7019	60					Low	Fair	Med. Obl.		Antenna & Flag
7020	60					Low	Fair	Med. Obl.	W	Lunar Surface
						-				
						·				
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MAGAZINE X (Frames AS12-48-7022 thru 7171)

Magazine X is 70mm black and white photography taken before, during and after the second EVA on the Lunar Surface. Each of the images has a reseau superimposed on the 60mm lens.

Included in the picture content of this magazine are panoramic views of the Lunar Surface from the LM window showing the Flag and ALSEP equipment and the Solar Wind Panel. Surveyor III, Surveyor Crater, Block Crater, and the color chart are also included.

The following panoramas of areas on the Lunar Surface near the LM and Surveyor are listed below:

- I. 48-7031-7032
 - 2 frame view from LM looking Northwest at terrain near LM.
- II. 48-7088-7090
 - 3 frame pan of Surveyor Crater, view to Northwest from Southeastern rim, showing Surveyor, LM and blocky rim of small crater on north slopes of Surveyor Crater.
- III. 48-7101-7105
 - 5 frame pan to Northeast, inside Surveyor Crater, closeup view of Surveyor with arm extended.
 - IV. 48-7141-7143
 - 3 frame pan of Block Crater, with view to West from East rim, showing LM and Surveyor Crater. Part of the Surveyor III is visible at the extreme upper left of the pan.
 - V. 48-7144-7147
 - 4 frame pan of Block Crater with view to the South from the North rim showing view into Surveyor Crater. Surveyor III is visible in the upper left of the pan.
- VI. 48-7153,7156,7157
 - These 3 frames comprise a short pan of the near terrain to the West of LM.
- VII. 48-7166-7169
 - 3 frame pan from LM looking North at ALSEP and Flag.

VIII. 49-7308---7311

3/

4 frame pan looking west showing the lunar surface, the lunar surface hand tool kit and Astronaut Bean with hand tools.

IX. 49-7321---7324

Originally a 5 frame pan of Surveyor Crater, Frame 7325 is 90% washout and 7326 will not tie end of pan. This pan, which contains 3 frames, begins on the southwestern rim of Surveyor Crater looking east at Surveyor and the eastern inner slope of the crater and pans counterclockwise to LM on the northwestern rim.

Sheet _1 of _10 Sheets

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Frame #	Camera # f Length	Approx. Photo Scale		ocipal oint	Fwd O/L		Photo	Approx. Tilt	Direction of	Description
71	r Cengin	Filoto Scale	Lat	Long			Quality	Min — Max	Tilt	
7022						Low	Fair	OBLIQUE Med.	SW	Surface View from LM
7023						11	11	- 11	W	II .
7024						11	Good	ft	W	11
7025						11	11	11 ·	11	11
7026				······································		11	11	11	11	ŧ1
7027						11	Ħ	11	11	† 1
7028						11	11	11	NW	11
7029						11	11	11 .	11	11
(030						11	11	11	11	11
031	COMPANIES AND AND AND AND AND AND AND AND AND AND					11	11	11	31	17
032						11	11	11	11	11
033						11	ti	Low		11
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035						11	ti .	"	11	View Under IM
036						"	11	tt ·	W	Photograph of Color C

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Principal Approx. Direction Frame Camera # Approx. Fwd Sun Photo Point Tilt Description of # f Length Photo Scale 0/L Quality Angle Min — Max Tilt Lat Long OBLIQUE Color Chart, Solar 7037 Med. Low Good Wind Panel 7038 11 Fair Low E Color Chart 7039 ** 11 \mathbf{E} 7040 Ħ 11 Ε Med 7041 17 Solar Wind Experiment Good NW 7042 ** 11 SW Small Crater on 7043 WSW Low Lunar Surface 7044 11 7045 Med **†**† 7046 11 SW View of Lunar Terrain 7047 Tri-Pod Holder of 7048 Core Tube Sampler U22 Low 7049 11 7050 Ħ 11 Med W

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SW

Low

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Frame #	Camera # f Length	Approx. Photo Scale		icipal pint	Fwd O/L	Sun	Photo	Approx. Tilt	Direction of	Description
	Lengin	riioto Scale	Lat	Long	O/L Angle	Quality	Min — Max	Tilt		
7052						Low	Good	OBLIQUE Low	SW	Area of Core Sample
7053						11	17	11	11	1
7054						11	11	11	. W_	View of Lunar Terrain
7055						Ħ	. 11	11	U	t!
7056						tt ·	ff	Med	W	Crater on Lunar Surface
7057						11	11	11	11	n .
7058					. *	11	11	11	ττ	11
7059						11	11	Low	SW	Tri-Pod Holder for Core Tube, Lunar Terrain
7060						11	11	Med	W	Tri-Pod Holder for Core Tube, Large rock
7061						. 11	11	11	W	Tri-Pod Holder for Core Tube, Large Rock '
7062		N Planting Com Control of Company (1988 A had managed Control of Company (1988 A had managed Control of Company				11	11	Low	`	Core Sample
7063						11	Ħ	Med	W	Tri-Pod Holder for Core Tube, Lunar Terrain
7064.			**************************************		:	71	11	11	11	11
7065						11	11	11	11	" Bench Crater
7066						11	11	II	11	11 11 11

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Frame #	Camera # f Length			icipal pint	Fwd O/L	Sun	Photo	Approx. Tilt	Direction of	Description
π- 	i Lengin	Photo Scale	Lat	Long	U/L	Angle	Quality	Min — Max	Tilt	
70 6 7						Low	Good	OBLIQUE Med	W	Tri-Pod Holder for Core Tube, Bench Crater
7068						11	11	11	11	Tri-Pod Holder for Core Tube, Core Sample
7069						11	11	11	11	11
7070						Ħ	11	Low	SW	Tri-Pod Holder for Core Tube, Lunar Terrain
7071						11	11	Med	NW	Astronaut Holding Core Tube, LM in Background
7072						11	11	TI TI	SW	Tri-Pod Holder for Core Tube, Lunar Terrain
7073						Ť1	11	11	1 1	H .
7074						n	11	11	. 11	Tri-Pod Holder for Core Tube, Astronaut
7075						11 11	tt .	Ħ	S	Lunar Terrain
7076	4.					11	11	. 11	11	11
7077						11	11	tr ·	SW	Lunar Terrain, Core Tube
7078						11	Poor	tt	SW	Core Tube
7079						11	11			Washed Out
7080						11	11			11
7081						11	11			11

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<i>TT</i>	Lengin	Photo Scale	Lat	Long	OZL	Angle	Quality	Min — Max	Tilt	
7082						Low	Good	OBLIQUE Low	W	Tri-Pod Holder for Core Tube, Hand Tool Ki
7083	Committee Code Contract of NEW NEW Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement Agreement A					11	## 	11	SW	11
7084						Ħ	11	H i gh	NE	Surveyor Crater Surveyor III
7085						11	11	11	n	11
7086						11	11	11 .	U	
7087	THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO SHAPE THE CONTRACTOR AS TO					11	11	11	11	11
7088						11	11	11	Ŋ	11
7089						11	11	tt :	11	11
7090	No month this to the literature and deplete the desired and comments are as a second			an Principal de Principal de La Companya de La Companya de La Companya de La Companya de La Companya de La Comp		Ħ	11	11	†1	Surveyor Crater Surveyor III, LM
7091						11	ŤŤ ·	ŧŧ	NW	
7092						11	11	11	NW	11
7093						11	ţţ		NW	n n
7094						- 11	11	Med	11	11
7095						11	11	11	11	Surveyor III
7096				3		11	11	11:	11	17

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Frame #	Camera # f Length	Approx. Photo Scale		icipal pint	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
77	Lengin	Filoto Scale	Lat	Long	0, 5	Aligie	Quanty	Min — Max	Tilt	
7097						Low	Good	OPLIOUE Med	NW	Surveyor Crater
7098					·	11	. PF	Low	E	Lunar Soil Near Surveyor Scoop
7099						11	- 11 -	High	NW	Surveyor III, LM
7100						ti .	11	11	tt	11
7101						11	ff.	11	NE	Surveyor Crater
7102						Low	11	11	NE	Surveyor III, Scoop Shovel, Surveyor III
7103						11	11	11	11	11
7104						11	†1	Med	NE	Surveyor III
7105						11	11	11	11	11
7106							11	. 11	11	Surveyor III Scoop Shovel
7107						• • • • • • • • • • • • • • • • • • • •	11	. 11	11	. 11
7108	99.					11 11	11	11	11	11
7109						11	11	. 11	11	n .
7110						ŤĬ	11	Low	N	Surveyor III, Foot Pad, with Pad Imprint
7111						11	11	11	11	.11

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Frame #	Camera # f Length	Approx. Photo Scale		cipal oint	Fwd	Sun	Photo	Approx. Tilt	Direction	
	201911	Filoto Scale	Lat	Long	0/L	Angle	Quality	Min — Max	of Tilt	Description
7112						Low	Good	OBLIQUE Low	N	Surveyor III Foot Pad, Pad Imprint
7113						ff	11	11	. 11	Surveyor III Foot Pad
7114						11	tt	11	TT.	Surveyor III
7115				·		11	tt	Med	NW	ıı
7116						11	11	11	11	11
7117						11	11	11	11	11
7118	According to the second second second second second second second second second second second second second se					Ħ	††	Low	NE	Surveyor III Equipment
7119						11	11	***	NW	Surveyor III Foot Pad
7120						11	îī	11	!!	11
7121						11	11	Med	NE	Surveyor III
7122						11	11	High	N	11
7123						11	11	n	NE	
7124						. 11	11	Low	E	Surveyor III Foot Pad
125						11	11	Med	SE	
126						11	11	Low	SE	Surveyor III Equipment Surveyor III Foot Pad

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Frame #	Camera # f Length	Approx. Photo Scale		n cipal pint	Fwd	Sun	Photo	Approx. Tilt	Direction of	Description
	Lengin	Filoto Scale	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	
7127						Low	Good	OBLIQUE Low	S	Surveyor III Foot Pad
7128						11	11	11	S	Surveyor III Scoop Shovel
7129						tt	11	11	SW	II .
7130						11	11	H i gh	W	Surveyor III Equipment
7131						11	ff .	11	ff .	11
7132	- Mark Miles (Mark Stranger Stranger Stranger Stranger Stranger Stranger Stranger Stranger Stranger Stranger S					11	11	11	SW	11
7133						11	11	11	NW	View of Astronaut, Surveyor III and LM
7134						11	11	High	NW	11
7135	WOMAN CANADA TANADA					11	11	11	11	11
7136	MADDED Symmon Spirit All Moreover on State Section 1999					17	11	11	17	H (
137						11	11	Med	SW	Surveyor III . Equipment
138						11	ţ:	11	S	11
139						11	11	11	NW	Surveyor Crater Terrain
140						11	ti	11	S	"
141						11	11	Ħ		View of Block Crater, Surveyor Crater

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Frame #	Camera # f Length			icipal pint	Fwd O/L	Sun	Photo	Approx. Tilt	Direction of	Description
		Thoro Scare	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	
7142		and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t				Low	Good	OBLIQUE Med	SW	View of Block Crater Surveyor Crater
7143						11		The statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the st		View of Block Crater Surveyor Crater, LM
7144		Administration and the second				ŧŧ .	II	11	S	Block Crater Surveyor III
7145						ff	11	11	11	11
7146						11	PT	11		Block Crater . Surveyor Crater
7147						11	TT	11 '	11	Surveyor Crater
7148			***************************************			11	! !	Low	N	Astronaut using tongs to pick up rock
7149						Ŧſ	!!	11	11	11
7150						11	11	1:	. 1*	. 11
7151						11	11	High	W	View of LM
7152			AND MAKES LINES FOR STREET, THE			11	11	11	11	11
7153			er e a a companya de la companya de			"	11	Ħ		View of Lunar Terrain from IM
7154	- ACACT SHOWER WITH COLORS CO.					Ħ	11	11	SW	11
7155			-	and the second second second second second		11	[]	11	W	1†
7156			The contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract o			11	11	11	11	11

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Magazine X Film S0-267Time Reference — GET — = GMT —

Frame #	Camera # f Length			ncipal pint	Fwd	Sun	Photo	Approx. Tilt	Direction of	Description
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MAGAZINE Y

(Frames AS12-46-6715 thru 6868)

Magazine Y contains color photography taken before, during and after

EVA 1. Each of the images has a reseau superimposed on the 60mm lens.

Included are the following seven panoramas of the area around the ALSEP deployment:

I. 46-6730-6745

17 frame pan from West to Northwest showing Astronaut before ALSEP deployment to Northeast at flag, antenna and LM (sunglint), to West with Surveyor Crater.

II. 46-6746-6763

19 frame pan, 360° taken from North of LM, includes Surveyor Crater, Surveyor, LM, flag, panel and TV camera and return back to Surveyor Crater.

III. 46-6764-6782

Complete 360° pan with Astronaut (camera station) Southeast of LM on rim of Surveyor Crater. Pan includes Surveyor III, Surveyor Crater and LM.

IV. 46-6807-6811

5 frame pan from South to Southwest showing Astronaut deploying ALSEP. LM, flag and antenna in background to South. Mound to Southwest in central portion of pan.

V. 46-6836-6844

9 frame pan of "1000 Crater" Northwest of Head Crater, showing entire rim with numerous rocks.

VI. 46-6845-6852

8 frame pan of "1000' Crater", Northwest of Head Crater, showing entire rim with numerous rocks.

VII. 46-6853-6855

3 frame pan to West, contains bench crater to extreme Southwest, head crater to West and blocky mound to Northwest.

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Sheet 2 of 11 Sheets

APOLLO 12 PHOTOGRAPHY
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APOLLO 12 PHOTOGRAPHY
Magazine Y Film HCEX

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Frame #			Principal Point		Fwd		Photo	Approx. Tilt	Direction of	Description
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6820	60					Low	Fair	Med Obl	W	Ion Detector
6821	11					11	11	11	11	ALSEP Deployment
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APOLLO 12 PHOTUGRAPHY

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6835	60				Low	Fair	Low Ohl		Lunar Surface
6836	tt .				11	11	Med. Obl.	W	(Start) 9 Frame Pan NW of ALSEP
6837	11				11	11	· 11.	11	11
6 83 8	11				11	ii ii		u	11
6839	11			· · · · · · · · · · · · · · · · · · ·	11	Ħ	11	11	11
6840	11				11	t1	11	11	11
6 <u>841</u>	11				11	**	1 !	11	. 11
6842	11				11	11	11	11	II
6843	11				11	. tt	11	††	11
6844	tt				11	tt.	11	11	" (End)
6845	11				11	11	lt .		(Start) 8 Frame Pan NW of ALSEP
6846	11				11	11	11		11
6847	11				11	11	11		tt .
6848	11				11	11	11	11	
6849	11				11	11	11		11

APOLLO 12 PHOTOGRAPHY Magazine Y Film HCEX Time Reference — GET — = GMT —

Frame #	Camera # f Length	Approx. Photo Scale		ncipal pint	Fwd	Sun.	Photo	Approx. Tilt	Direction	Description
	mm	Filoto Scale	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	
6850	60					Low	Fair	Med. Obl.		8 Frame Pan NW of ALSEF
6851	11					11	11	11		11
6852	11					11	11	11		Ħ
6853	II					- 11	11	Low Obl.	W	(Start) 3 Frame Pan From LM
6854	11			The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s		11	ff.	11	- 11 -	tt.
6855	11					11	11	11	11	" (End)
6856	11	- Martin (1880-1880) oli oli oli oli oli oli oli oli oli oli	in Charles a gapes			11	11	11	. 11	4 Frame Pan From LM
6857	11					11	Ħ	! ! .	11	11
6858	11					11	11	Ħ	11	II
6859	11		4-24-4-			11	11	11	tt	" (End)
6860	11					11		Med. Obl.	11	ALSEP From LM
6861	11.					11	11	1	· · · · · · · · · · · · · · · · · · ·	Solar Wind Panel Flag/Antenna
6862	11	The consideration of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the const				11	11	11	11	3 Frame Pan ALSEP From LM (Start)
6863	11					11	11 .	11	!!	!!
6864	11					ţţ	11	11		" (Find)

APOLLO 12 PHOTUGRAPHY

Magazine Y Film HCEX

Time Reference — GET — = GMT —

Frame #	Camera # f Length		Principal Point		Fwd	Sun	Photo	Approx. Tilt	Direction of	Description
***	mm	Photo Scale	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	200011711011
6865	60					Low	Fair	Med Obl	W	Flag/Antenna/Solar Wind
6866	11					tt .	11	11	11	ALSEP From LM
6867	11					11	11	ŦŤ	11	11
6868	11	makan makanda siri samusudi si kalabul sul'ang sang sa samusudi si samusudi si samusudi si samusudi si samusud		Mark and a second and the support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support support supp		11	11		11	11
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MAGAZINE Z

(Frames AS 12-49-7172 thru Frames 7324)

Magazine Z is 70mm black and white photography taken on the Lunar Surface during the second EVA. A 60mm lens with a reseau was used. Photo content includes the core samples, took kit and views of Head, Bench and Halo Craters.

The following descriptions are of the Magazine Z Panorama:

I. 49-7209---7212

4 frame pan looking west to north showing the Lunar Surface. Lunar Surface hand tool kit is in the center of the pan.

II. 49-7213---7215

3 frame pan to east over head crater, showing LM.

III. 49-7223---7328

6 frame clockwise pan of bench crater, rim to rim, looking south from north rim, showing E, S, W inner walls and large rocks in floor.

IV. 49-7229---7233

5 frame counterclockwise pan of bench crater from north rim, showing south and west walls and floor.

V. 49-7244---7256

13 frame counterclockwise pan looking east into sun, showing astronaut, LM and numerous rocks. Pan continues to the north and then to due west.

VI. 49-7263---7269

5 frame counterclockwise pan of sharp crater looking west from outside eastern rim. Very blocky.

VII. 49-7271---7275

5 frame clockwise pan of sharp crater looking from east rim to west.

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	Magazine .				Film	50-207
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Frame #	Camera # f Length	Approx. Photo Scale	Pα	ncipal pint	Fwd	Sun	Photo	Approx. Tilt	Direction of	Description
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7172						Low	Poor		S	Lunar Terrain
7173						! !	Good	High	11	View into Head Crater
7174		:				11	11	Ħ	tī.	п
7175	·					11	ti .	tt	11	11 11
7176						ti .	Ħ	? T	11	TI II
7177						TT .	11	11	11	11 11
7178						! !	11	11	T1	ti ti
7179	·					11	11	Med.	††	11 11
7180						11	11	11	11	11 11
7181						f1	tt .	11	Ħ	11 11
7182						11	11	11	11	11 . 11
7183						17	11	11	11	11 11
7184						, II	11	11	SE	11 11
7185						11	ft.	11	††	11 11
7186		AND COLUMN TOWN ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESS				tī	ŧī .	11	!!	II II

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APOLLO 12 PHO:OGRAPHY

Magazine Z Film S0-267

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Frame #	Camera # f Length		P.	ncipal cint	Fwd O/L	Sun	Photo	Approx.	Direction	Description
	201911	Thoro Scale	Lat	Long	OZL	Angle	Quality	Oblique	Tilt	Description
7202						Low	Good	High	SE	View of Lunar Surface
7203						ti	11	II	S	" #
7204		·				11	ff	11	SW	11 11
7205				·		ft	11	tt.	şw	11 11
7206						ff f	11	11	W	II II
7207						Ħ	11	Ħ	††	tr tr
7208						11	ŤŤ.	tt	NW	II II
7209						11 .	TI .	11	11	11 11
7210						11	ţ1	Med.	NW	View of Lunar Surface
7211						11	fl .	11	N	Hand Tool Kit
212						11	11	tt	N	View of Lunar Surface
213						"	11	11	NE	Astronaut LM, Head Crater
214						11	Fair	Med.	E	
215	10-440-4-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1					11	11	!!	E	LM, Head Crater
216						11	l1	11	E	Head Crater

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Magazine Z Film SO-267Time Reference — GET — = GMT —

Frame #	Camera # f Length	, , ,	P	ncipal pint	Fwd O/L	Sun	Photo	Approx. Tilt	Direction of	Description
-	Longin	Thoro Scare	Lat	Long	, 0/ L	Angle	Quality	Oblique	Tilt	
7217						Low	Good	Low	NW	Core Sampler
7218						11	11	11	11	п
7219	·			·		11	ji .	18 9	N	Core Sampler Large Rock
7220						ŧī	††	11	N	11 11
7221	The Article Control of the Control o					††	ti .	Med.	NNE	Core Sampler Hand Tool Kit
7222						11	11	tt .	11	11 11
7223						11	11	11	SE	Bench Crater
7224						11	Ħ	Tt .	S	11 11
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7226						11	11	ti	SW	11 11
7227			* * _{1.}			11	††	11		11 11
7228						ft	††	11	17 .	11 11
7229						11	11	FF	W	11 11
7230						†1	ÎĪ	. 11	SW	II II
7231						11	11	n	S	11 11

Terrain

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APOLLO 12 PHOTOGRAPHY

Magazine Z Film SO=267Time Reference — GET ____ = GMT _____

Frame #	Camera # f Length			icipal pint	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
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7247		-				Low	Fair	High	NE	Lunar Terrain, LM
7248						11	Good	11	11	11 11
7249						ti .	11	11	N	ti ti
7250						11	11	11	NE	Lunar Terrain
7251						11	11	11	N	11 11
7252						11	11	11	NW	View of Lunar Terrain
7253						11	11	11	. 11	Large Boulder
7254						11	11	11	W	Lunar Terrain
7255						11	††	11	Ħ	11 11
7256						11	ft	11	11	11 11
7257					,	11	ff	ti	11	11 11
7258						tt	fi :	11	SW	11 . 11
7259						11	ff .	11	S	II ti
7260						11	11	Med.	S	Lunar Terrain Large Rock
7261						11	11	11	SE	Lunar Terrain

APOLLO 12 PHOTOGRAPHY

Magazine Z Film S0-267

Time Reference — GET ____ = GMT ____

Frame #	Camera # f Length	Approx. Photo Scale	Prin Po	cipal int	Fwd	Sun	Photo	Approx.	Direction of	Description
77	r Lengin	Filoto Scale	Lat	Long	0/L	Angle	Quality	Unlique	Tilt	
7262						Low	Good	Med	SE	Lunar Terrain
7263	,					11	n'	11	NW	Halo Crater
7264						11	11 -	tr .	W	11 11
7265			-			11	71	1 1	11	. 11
7266						Ħ	Ħ	11	ff	11 11
1267						ti .	11	11	11	11 11
268						î î	11	11	·SW	Halo Crater
1269						11	ti .	11	11	11 11
270 .						11	11	11	tt	11 11
271						11	11	11	W	11 11
272				:		11	11	ti .	11	н
273	-					11	f1	Ħ	11	n n
274						11	II	11	NW	11 11
275						11	ft .	' - H	11	11 11
276				ŀ		n	11	Low	S	Core Sampler Near Halo Crater

APOLLO 12 PHOTOGRAPHY

Magazine Z Film S0-267

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7277		·			Low	Good	Low	S	Core Sampler near Halo Crater
7278					ti	11	Med.	SE	Astronaut holding Core Sample
7279					11	T!	Low	S	Core Sampler near Halo Crater
7280					11	11	11	11	п
7281					11	ti .	Med.	S	Astronaut, Hand Tool Kit
7282					T1	tt	††	SE	Core Sampler
7283					11	11	Low	SE	11 11
7284			.]		11	11	11	. 11	11 11
7 285					11	11	11	11	11 11
7286					11	††	M ed.	SW	Astronaut and Core Sampler
7287					11	ti	Low	S	Core Sampler
7288					"	11	11	SE	II II
7289			i		11.	11	High	W	View of Lunar Terrain
7290				And supported to	11	11	ft .	W	11 11
7291		Ī			17 .	11	11	SW	ti ti

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Frame #	Camera # f Length	Approx. Photo Scale		ncipal pint	Fwd O/L	Sun	Photo Quality	Approx.	Direction of	Description
	Lengin	Thoro Scale	Lat	Long	0/1	Angle	Quality	-02240	Tilt	
7307						Low	Good	Med.	NW	Astronaut and Hand Tool Kit
7308						11	ļt .	11	11	11 11
7309						11	11	High	W	11 11
7310			-			11	Fair	11	W	View of Lunar Terrain
7311					70.00	11	Fair	11	W	11 11
7312						11	Good	Low	SW	Astronaut Collecting Rock
7313						11	Good	Ħ	NW	ff H
7314					110 Th. 11	11	11	11	S	Core Sampler, Hand Tool Kit
7315						11	11	11	S	11 11
7316						11	Good	High	NW	View of LM
7317						11	11	11	11	11 11
7318						11	ti .	Med.	SE	Astronaut and Hand Tool Kit
7319						11	P†	11	11	11
7320						tī .	î î	Low	īī	11 11
7321						11	Poor	High	E	View of Lunar Terrain, Surveyor III

APOLLO 12 PHOTOGRAPHY
Magazine Z Film SO=267
Time Reference — GET ____ = GMT _____

Frame #	Camera #		Prir Po	icipal pint	Fwd	Sun	Photo	Approx. Oblique	Direction of	Description
#	f Length	Photo Scale	Lat	Long	0/L	Angle	Quality		Tilt	
7322						Low	Fair	High	NE	Surveyor Crater Surveyor III
7323						tr Tr	Poor			Photo Underexposed
7324						11	Fair	Med.	E	Surveyor Crater
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MAGAZINE EE

(Frames AS12-55-8121 Thru Frames 8297)

Photo coverage of magazine EE (AS12-55) is imaged on 70mm B&W (S0164) film. Exposures were made from the command module with camera focal lengths of 80mm and 250mm at approximately 60 nautical mile altitude. Frames start with number 8121 and end at 8297, a total of 177 exposures, of poor to good quality photography. The 75 frame 80mm stereo sequence of near vertical exposures of the back-side of the lunar surface are good. Approximate coverage is from 113°E 5°S to 34°E 11°S. To 13 is covered on frames 8197 and 8198. Complete coverage of craters Kapteyn, Langrenus A and Magelhaens was obtained, La Perouse crater excepting the very northern section and the northern part of Langrenus crater were also photographed in this near vertical stereo sequence. Other coverage included 80mm lens high obliques of Reiner crater, T053, frames 8121-8123, 250mm lens high altitude small scale TEI photographs of the eastern part of the lunar surface, frames 8201-8297. In this series frames 8216-8225 showed good detail. Six exposures of MAG EE were blanks.

Frame #	Camera # f Length	Approx. Photo Scale		icipal oint	Fwd O/L	Sun Angle	Photo Quality	Approx. Tilt	Direction of	Description
	mm	1 Word Oddie	Lat	Long	0, 2	Aligie	Quality.	Min — Max	Tilt	
8196	80	1:1,376,900	11.08	41.0°E	65%	High	Fair	Near Vertical	W	S Edge of Gutenberg & N of Pyrenaeus
8197	11	11	Ħ	40.0°E	11	11	11	ŧŧ	11	SW of Gutenberg & Gaudibert J: TO 13
8198	11	n	- 11	39.0°E	11	11	11	11	W	E 3/4 of Gaudibert & SW of Gutenberg; TO 12
8199	` 11	11	11	38.0°E	11	11	11	11	11	Gaudibert & surrounding Area
8200	11	*11	11	36.0°E	11	11	11	11	·n	W 1/4 of Gaudibert & SE of Capella
8201	250						11			TEI East Half of Moon
8202	11						11			π
8203	71						11			11
8204	11						11			11
820 5	81 ·						17			11
8206	11		* 2				11			₹ 6
8207	11						19			11
8208	17						-11			11
8209	11				·		11			11
8210	īī .						11			11

APOLLO 12 PHOTOGRAPHY

Magazine <u>EE</u> Film <u>B&W (SO</u>164)

Time Reference — GET ____ = GMT ____

Frame #	Camera # f Length	Approx. Photo Scale		ncipal pint	Fwd O/L	Sun	Photo:	Approx. Tilt	Direction of	Description
	mm	Thoro Scare	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	Description
3209	250						Fair			TET Fast Half of Moon
210	11						11			tt
211							11			17
212	` 11						†1			11
213	11						11 .			TEI E 3/4 of Moon
214	†1						11			11
215	11						11			11
216	11						t1			n
217	11						11			Nodin Non V
218	"						: 11			Nadir Near Mare Crisium
219	11						11			"
220	11						11			
221	11						11			" Blw NEg
222	11						11			" " "
23	11						11			11

Sheet 8 of 12 Sheets

APOLLO 12 PHOTOGRAPHY
Magazine <u>EE</u> Film <u>B&W (S01</u>64)

Time Reference — GET ____ = GMT ____

Frame #	Camera # f Length		Prin Po	cipal int	Fwd	Sun	Photo	Approx. Tilt	Direction of	Description
	mm	Photo Scale	Lat	Long	0/L	Angle	Quality	Min — Max	or. Tilt	Description
8224	250						Fair			Nadir Near Mare Crisiu
8225	Ħ						II .			
8226	11		·		·	·	11			11
8227	` H						II.			11
3228	11									
3 229	11		ĺ				Poor			Poor Detail
230	11						11			
231	11						11			11
232	11						11			Dark
233	11						11			TEL E 3/4 of Moon
234	11						11			
235	11						11			11
236	11						11			11
237	11								·	H
238	11						11			"

APOLLO 12 PHOTOGRAPHY
Magazine EE Film B&W (S0164)
Time Reference — GET — = GMT —

Frame #	Camera # f Length		Prir Po	ncipal pint	Fwd	Sun	Photo	Approx.	Direction of	Description
.,	mm	Filoto Scule	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	
8239	250						Poor			Dark TEI E 3/4 of Moon
8240	11					·	11			11
824i	11						11			11
3242	` 11						! !			II
3243	11						11			Ħ
3244	11						11			n
3245	"						11			11
3246	11						11			11
3247	11						11			11
248	11						11			11
249	11						11			11
250	71						11			11
251	11						11			н
252	11						II .			11
253	11						11			11

 APOLLO 12
 PHOTOGRAPHY

 Magazine __EE _____ Film _B&W (S0164)

 Time Reference — GET ______ = GMT ______

Frame #	Camera # f Length		Pris Po	ncipal pint	Fwd O/L	Sun	Photo	Approx. Tilt	Direction of	Description
	mm	1 Hold Scale	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	
8254	250						Poor			Dark TEI E 3/4 of Moon
8255	11						11			. "
8256	ļi .						tt	3		11
8257	. 11						11			Ħ
8258	11				·		11			11
8259	11						. 11			II .
8260	11						11			11
8261	11					·	11			11
8262	11						11			II
8263	11						. 11			H (
3264	11						11			TEI - Very Distant' Photos of Moon
3265	11						11			THORUS OF MOON
3266	n						11			tt.
267	11						11			Ħ.
268	"						t•			*

 APOLLO
 12
 PHOTOGRAPHY

 Magazine
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 Film B&W (SO_164)

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Frame #	Camera # f Length	Approx.	- Prin	icipal pint	Fwd	Sun	Photo	Approx.	Direction of	Description
#	f Length	Photo Scale	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	
8269	250			, .			Poor			TEI- Very distant photos of Moon
8270	11			·			11			•
8271	11									
8272 .	11						11			TEI - Very distant photos of Moon
8273	11									
8274	11						11			TEI - Very distant photos of Moon
8275	11						11			Ħ
8276	11					·	11			
8277	11						11			11
8278	11						11			Ħ
8279	"						!!			II .
8280	n						tt .			11
8281	11						11			11
8282	11						11			11
8283	11						ţţ			Ħ

Frame Camera #		Principal Point		Fwd Sun		., 1117	Direction of	Description		
#	f Length	Photo Scale	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	
8284	250						Poor			TEI - Very Distant Photos of Moon
8285	11 .						11			
8286	††						11			11
8287	††						11			ii ·
8288	11						H			11
8289	11						11			11
8290	11	Blank '	DATE COMPOSITION OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY O	Samuelani en successi de la constanta de la constanta de la constanta de la constanta de la constanta de la co					and a design of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the C	Blank
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8293	11	!				h _i				11
8294	Å å						Poor			Unidentified Object - Pos. Section of Hatch
8295	TT	COMMON COLUMN CO					. #1			Window Rings
8296	11						"			Unidentified Object Pos. Section of Hatch
8297	TT	egyper chekking graggion galan e ekszer venelegyper ziveléle ér venelegyper erművelekérés		- The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the			ti .	THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE S		Window Rings
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APOLLO 12

LUNAR MULTISPECTRAL CAMERA (LMC) S-158 Experiment Assembly

- I. Characteristics Four EL Hasselblad cameras with 80mm lenses were mounted together in such a manner that they could be aimed and operated simultaneously.
 - Magazine AA-- 80mm lens Infrared B & W S0246, 87C filter,
 - Magazine BB-- 80mm lens medium speed B & W 3401, 47B filter, (blue) 150 frames
 - Magazine CC-- 80mm lens medium speed B & W 3401, 29 + filter (red), 150 frames
 - Magazine DD-- 80mm lens B & W 3400, 58 filter (green), 150 frames

Camera mounts were perpendicular to hatch window. Alignment was 57.5° pitched up from X axis. The B & W IR does not give as complete coverage as does the B & W, since this camera was turned on midway in the sequence. See Multispectral Camera Photo Index for coverage.

APOLLO 12 PHOTOGRAPHY
Magazine AA Film IRBW
Time Reference — GET _____Filter Blk 87C

Frame #	Camera # f Length	Approx.		ncipal pint	Fwd	Sun	Photo	Approx.	Direction of	Description
#	f Length	Photo Scale	Lat	Long	0/L	Angle	Quality	Min — Max	. - ·	
8314	80mm	1:1,470,000	10 . 58	101.5 ⁰ E	60%	Medium	Fair	Vertical		Begin IR Stereo Strip
Thru	11									
8326	11	11	12.5 ⁰ S	89.0 ⁰ E	11	11	11	n .		End IR Stereo Strip
8349	†1	11	13.0°s	33.0°E	11	High	Ħ	- 11		Begin IR Stereo Strip
Thru	11	11			11	11	11	"		Theophilus, Descartes Fra Mauro
8393	11	11	04.0°s	15.0°W	11	Low	Good	11		End IR Stereo Strip
8394	11	11	L2.0°s	93.0°E	11	High	Fair	11.		Begin IR Stereo Strip
Thru	11	11			- No.				•	Ansgarius, Kapteyn C Lame, McClure
8433	11	11	14.0°s	51.0°E	11	11	Poor	11		End IR Stereo Strip
8434	11	11	12.0°s	27.0°E	11	11	ŧī	10°-20 ⁰	North	Theophilus '
8435	11	11	11	- 11	11	11	11	n	11	11
8436	11	11	11.0 ⁰ s	15.0°E	†1	11	11	Vertical		Descartes
8437	11	11	11	11	11	11	11	11		11
8438	11	11	04.0 ⁰ s	15.0°W	11	Medium	Fair	11	term man calls dark alle	Fra Mauro
8439	li .	11	11	11	11	11	11	11		Fra Mauro End Experiment

APOLLO 12 PHOTOGRAPHY
Magazine BB, CC, DD Film 3401 MBW Time Reference — GET ____ = GMT ____

Frame Camera # # f Length			ncipal pint	Fwd	Sun		Approx.	Direction of	Description	
<i>TT</i>	Lengin	Filoto Scale	Lat	Long	0/L	Angle	Quality	Min — Max	Tilt	
8298	80mm	1:1,500,000	04.0S	133.0°E	None	Low	Good	Vertical		Crater #286
8299	11	11	06.0°S	120.0 ⁰ E	60%	11	11	11		Begin Stereo Strip Crater II
Thru	11	11				11	11	11		TT TT
8326	11	11	12.58	89.0°E	ļI.	11	11	11		End Stereo Strip
8327	11	11	14.08	54.0°E	11	High	Fair	11	are an air her are	Begin Stereo Strip
Thru	11	11			11	11	11	. 11		McClure, Theophilus
8393	TT	11	04.08	15.0°W	11	Medium	Fair to Good	tr		Descartes, Lalande
8394	11	11	13 . 0%	93.0°E	11	11	Good	11 .		Begin Stereo Strip Ansgarius
Thru	11	11				11		· 11		Kapteyn A and C
8433	11.		14.08	51.0°E	Ħ	. 11	Fair	IJ		End Stereo Strip McClure
8434	11	11	12.08	27.0°E	11	High	Good	10°-20°	North	Theophilus
8435	11	11	11	tt .	!1	11	11		- H	11
8436.	11	11	11.09	15.0°E	II.	ti	11	Vertical		Descartes
8437 8438 &	. 11	11	11	11	11	17	11	11 .		11
3430 & 3439	11	11	04.0°s	15.0°W	11	11	t i	11		Fra Mauro End Experiment

MAGAZINES A thru P

Magazines A thru P are 16mm color and black and white sequence photography of the lunar surface taken from the CSM and the LM. There are a total of 15 magazines lettered A thru P with the letter J excluded. All magazines are color with the exception of magazine I. The quality of the photography ranges from poor to good.

Magazines A thru D, in order, portray Transposition and Docking; the LM in formation prior to landing; LM ascent from the CSM; and the LM being jettisoned. Magazine C also contains views of the Landing Site and the Surveyor III Site as seen through the sextant. Significant surface features covered on these four magazines are the Pyrenees Mountains, the Sea of Nectar, and the craters of Theophilus, Descartes. and Lalande A.

Magazine E is a sextant photography stereo strip running from east to west covering such features as Theophilus Peaks, Lalande A, and Fra Mauro. Also included are Landmark Tracking Sites (CP-1, CP-2, DE-1, and FM-1). The last section of Magazine E was taken after TEI and shows the eastern limb of the moon where Basin II, the farside terminator, and the Symth's and Crises Seas can be seen.

Magazines F thru I in order, include a sextant photography stereo strip, re-entry, the CSM interior, and black and white oblique sequences of Herschel, Fra Mauro, and Lalande.

Magazine K contains exposures of the CSM, Fra Mauro, Lalande, Ptolemaeus and the LM Descent and landing.

Magazine L, M, N and O were recorded from the LM after landing and include views of the deployed ALSEP, the American Flag, the S-BAND Antenna, and some of the astronaut activities during the first EVA.

Magazine P shows the Earth rise, Basin II, and the nearside terminator.

MAG: __A___

FILM: 16mm

FRAME NUMBER	LOCATION	DESCRIPTION	REMARKS
1-1600	-	Transposition and Docking	Good quality
1780-4180	14°S-75°E to 14°S-40°E	Craters Cocombo, Lame, Kapteyn B, Pyrenees Mountains	Good quality
A A A C C C A A A A A A A A A A A A A A			

MAG: ______

FILM: Color

FRAME NUMBER	LOCATION	DESCRIPTION	REMARKS
1–3415	15 [°] S-30 [°] E to 8 [°] S-14 [°] W	LM in formation prior to landing	Good Quality
		Theophilus, Cyrillus, Cyrillus "B",	
		Kant, Descartes, Dollond, Andel,	
		Ritchey, Hind, Halley, Albategnius,	
		Klein, Muller, Ptolemaeus, Herschel	
CONTROL SIMILAR CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTRO		LaLande "A"	
416–5316		LM in formation prior to landing	Good Quality
		(No Surface)	

MAG: ____C

FILM: Color

FRAME NUMBER	LOCATION	DESCRIPTION	REMARKS
1-2258	6°S-120°E to 11°S-98°E	Basin II Area	Poor to Fair quality
2259=2373		Landing Site (Surveyor III Crater) Through Sextant	Fair Quality
2374-2554	00°-31°W	Sextant Photography of Lansberg "A" LM ascent from CSM. Sequence ends	Fair Quality ** Beginning of
2555 <u>-</u> 5459	88 To 12 ⁰ S <u>-</u> 80 ⁰ E	over Crater Ansgarius	sequence unplottable.

MAG: __D___

FILM: Color

FRAME NUMBER	LOCATION	DESCRIPTION	REMARKS
1-3630	13 [°] S-77 [°] E to 15 [°] S-35 [°] E	LM Docking with CSM Craters	Good Quality
		Ansgarius, Kapteyn "B", Lame, Lohse	
e se de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya d		Crozier, Colombo, Magelhaens,	
		Madler, Theophilus, Sea of Nectar,	
		Fyrenees Mountains	
4726		LM Jettison	Good Quality

MAG: E

FILM: Color___

FRAME NUMBER	LOCATION	DESCRIPTION	REMARKS
0-616		Bright yellow dot against black background of space.	Poor film quality
617–1677	12S/41E to 4S/22W	Sextant photography stereo strip	Fair to Good quality.
			(From east to west,
			photos partially cover Daguerre, Theophilus, Kant, Dollond, Andel,
			Ptolemaeus, LaLande "A" & Fra Mauro).
(720)	11.7°S/33.3°E	Small bright crater in Daguerre	
(823)	11.5°S/26.3°E	Theophilus Peaks	
(917)	11.2°S/20.2°E	South rim of Kant	
(1015)	10.6°S/14.4°E	Dollond	
(1250)	8.9°S/1°E	Small wedge shaped crater on East rim of Ptolemaeus	
(1452)	6.5°S/10.3°W	West of LaLande "A"	
16781859	6°S/112°E	Sextant photography; landmark tracking site CP-1	Fair Quality
1860-2054	10 [°] S/56 [°] E	Sextant photography; landmark tracking site CP-2	Poor Quality Over-exposed
2055–2222	09 ⁰ S/15.5 ⁰ E	Sextant photography; landmark tracking site DE-1	Poor
	03 [°] S/17 [°] W	Sextant photography; landmark tracking site FM-1	Fair Quality

MAG: E FILM: Color

FRAME NUMBER	LOCATION	DESCRIPTION	REMARKS
2398-2669	06 ⁰ S/112 ⁰ E	Sextant photography; landmark tracking site CP-1	Fair Quality
2670-2924	10 ^o s/56 ^o e	Sextant photography; landmark tracking site CP-2	Fair Quality
2925-3115	09 [°] S/15.5 [°] E	Sextant photography; landmark tracking site DF-1	Poorover-exposed
3116-3272	03 [°] S/17 [°] W	Sextant photography; landmark tracking site FM-1	Fair
3273	Centered near 0° Lat.	TEI, Eastern Limb of Moon; including Basin II, Smyth's Sea Craters 201, 197, 198, 199, 195	Good Quality
		192, 191, 189, 202, 204, 206, 207 275, 277, 273, 270, 276.	
3478-3643	Centered near 0° Lat.	TEI, Eastern limb of Moon	Good Quality
	and 90° East.	including farside terminator. Direction of view is south and	
		southwestward. Includes Sea of Crises, Smyth's Sea, Basin II	
<u>.</u>			

MAG: F FILM: Color

FRAME NUMBER	LOCATION	DESCRIPTION	REMARKS
1-3386	3°S/123°E to 3°N/52°W	Sextant Photography Stereo Strip	Good Quality-High Sun Angle-Views are washed- out
(84)	4.5°S/120°E	Double Crater on ridge East on Crater 277	Located on Frame AS12- 54-7953 (Mag. T)
(203)	6°S/112°E	Small Sharp Rim Crater East of Crater 273	Located on Frame AS12- 54-7958 (Mag. T)
(237)	6°S/110.5°E	Small Crater on Southeast Rim of Crater 273	Located on Frame AS12- 54-7960 (Mag. T)
(323)	7 ^o S/106.5 ^o E	Rim of Sharp Crater North of Basin II	Located on Frame AS12- 54-2964 (Mag. T)
(395)	7.5°S/104°E	Rim of Crater Complex North of Basin II	Located or Frame AS12- 54-7967 (Mag T)
(920)	10.5°S/76°E	Bright Crater in LaPerouse	Located on Frame AS12- 54-7994 (Mag T)
(2308)	7°S/4.0°E	Small Bright Crater South of Hipparchus	Located on Frame AS12- 54-8063 (Mag T)
(2336)	7°S/2.5°E	Old Crater and Small Bright Crater North of Maller	Located on Frame AS12- 54-8065 (Mag T)
(2433)	6°s/3°n	West Rim of Herschel	Located on Frame AS12- 54-8070 (Mag T)
(2494)	5.5°s/6°w	Double Crater East of LaLande	Located on Frame AS12- 54-8073 (Mag T)
(2588)	5 ^o S/11 ^o w	Small Crater West of LaLande	Located on Frame AS12- 54-8078 (Mag T)
(2645)	4.5°S/13.5°W	Small Crater Northeast of Fra Mauro	Located on Frame AS12- 54-8081 (Mag T)
(2663)	4 ^o S/14.5 ^o W	Small Crater Northeast of Fra Mauro	Located on Frame AS12- 54-8081 (Mag T)
(2703)	4°s/16.5°s	Small Sharp Crater North	Located on Frame AS12- 54-8083 (Mag T)

MAG: F

FILM: Color

FRAME NUMBER	LOCATION	DESCRIPTION	REMARKS
(2746)	3.5°S/18.5°W	Juncture of Mare and Highlands North of Fra Mauro	Located on Frame AS12- 54-8083 (Mag T)
(2758)	3°S/20.5°W	Mare Northwest of Fra Mauro	Located on Frame AS12- 54-8086 (Mag T)
(2917)	1.5°S/ 27°W	Small Double Crater South of Lansburg	Located on Frame AS12- 54-8093 (Mag T)
(2968)	1.5°S/ 29.5°W	Small Crater and Rille Northwest of Lansburg "G"	Located on Frame AS12- 54-8096 (Mag T)
(3096)	.5°N/36°W	Small Crater and Rille Southeast of Encke "C"	Located on Frame AS12- 54-8103 (Mag T)
(3144)	l ^o n/38.5 ^o w	Small Triple Crater South Encke "T"	Located on Frame AS12- 54-8105 (Mag T)
(3169)	1°N/40.5°W		Located on Frame AS12- 58-8106 (Mag T)
3387-3856		Solar Eclipse by Earth	Good Quality

MAG: ____G

FILM: Color

FRAME NUMBER	LOCATION	DESCRIPTION	REMARKS
1-5519		Re-entry, drag and main parachute	Good Quality
		deployment	

MAG: H

FILM: Color

FRAME	NUMBER	LOCATION	DESCRIPTION	REMARKS
1-1103	·	CSM Interior	Crew shaving, astronaut using	Fair to Good Quality
			Hasalblad 70mm Camera, Astronaut	
			exercising, drinking.	
C. CANADA CANADA CANADA CANADA CANADA CANADA CANADA CANADA CANADA CANADA CANADA CANADA CANADA CANADA CANADA CA				
***/				

MAG: ___I

FILM: B&W

FRAME NUMBER	LOCATION	DESCRIPTION	REMARKS
1-2000	7 ^o S-8 ^o E to 6 ^o S-3 ^o W	Oblique Sequence to Herschel,	Poor to Fair Quality
		includes craters Hind, Halley,	
		Miller, North Portion of	
		Ptolemaeus	
2001-3431	· · · · · · · · · · · · · · · · · · ·	Too poor Quality to Plot	Poor Quality
3432-4911	5°S-11°W to 35°S-17°W	Oblique Sequence to Fra Mauro	Poor to Fair Quality
4912-6000	6°S-4°W to 4°S-9°W	Oblique Sequence to LaLande	Poor to Fair Quality
1-1164	7 ⁰ S-0 ⁰ to 5 ⁰ S - 20 ⁰ W	CSM from LM, Frau Mauro, Perry "L"	Poor Quality
		& "C", LaLande, LaLande "A", "C",	
		Herschel, Ptolemaeus	
1165-5494	2°S-26°W to 3°S-23°W	LM Descent and Landing	Good Quality
			-

LEC: 12569

MAG: ____ FILM: _Color_

FRAME NUMBER	LOCATION	DESCRIPTION	REMARKS
1-1557	Landing Site (3°S-23°W)	View out of IM window looking northwest. Astronaut during EVA	Good Quality
1558-3974	Landing Site (3 ⁰ S-23 ⁰ W)	Astronaut collecting lunar surface	Good Quality
3925-4109	Landing Site (3°S-23°W)	sample ALSEP Deployment Site	Fair Quality

MAG: M FILM: Color

FRAME NUMBER	LOCATION	DESCRIPTION	REMARKS
1-3808	Landing Site (3°S-23°W)	View from landed LM (window) look-	Good Quality
		ing Northwest. Astronaut during	
		EVA	
3809 -54 66	Landing Site (3°S-23°W)	View from landed LM (window)	Good Quality
· · · · · · · · · · · · · · · · · · ·		looking northwest. Shows American	
		Flag, deployed ALSEP, "S" BAND	
		Antenna	
5467-5576	Landing Site (3°S-23°W)	View from landed LM looking west.	Good Quality
		Shows LM Shadow	

MAG: N FILM: Color

FRAME NUMBER	LOCATION	DESCRIPTION	REMARKS
1-88	Landing Site(3°S-23°W)	View from landed LM (window).	Good Quality
		Astronaut during EVA.	
89–5539	Landing Site(3°S-23°W)	Panarama, Flag, ALSEP, LM shadow.	Poor-out of focus
		"S" BAND Antenna	
·			·
			4 210 1 210 1 210 1
			-

MAG: ____

FILM: Color

FRAME	NUMBER	LOCATION	DESCRIPTION	REMARKS
1-5518		LM Landing Site(3°S-23W	Taken from LM window after landing	Good Quality
			Shows American Flag, "S" BAND	
			Antenna; Direction of View North,	
			Astronaut during EVA	
· · · · · · · · · · · · · · · · · · ·				
-				

MAG: P

FILM: Color

FRAME NUMBER	LOCATION	DESCRIPTION	REMARKS
1–332		Overexposed & Unusable	
333–781	2 [°] S-25 [°] W to 2 [°] S-27 [°] N	Lansberg "N"	Good Quality
782-1181	10°S-105°E to 11°S-	Earthrise, Basin II	Poor Quality
	100°E		Dirty Window Out-of-Focus
1182-2694	3°N-40°W to 3°N-43°W	Terminator, Maestlin "R"	Fair Quality
2695–3157		Blurry CSM from LM	Poor Quality
3158-3456		Too poor quality to plot	

APOLLO 12 PHOTOGRAPHIC COVERAGE PLOTS

Photographic ground track plots which show the actual photographic coverage of the Lunar Terrain are being finalized by Aeronautical Chart and Information Center, St. Louis, Missouri.

APOLLO 12 EVA 70mm PANORAMA MOSAICS

Apollo 12 EVA Mosaics are being submitted to NASA Reproduction for copy and reduction to desirable format.